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ABSTRACT

The prime objective of this study, begun in 1949, was to determine whether or not newly reorganized rural school districts were more effective than the smaller districts they replaced. There were 5 experimental and 5 control communities in the sample. The investigation was longitudinal in design and examined 2 groups of subjects from their first year in school until 5 years after their high school graduation. The longitudinal nature of the investigation made possible the pursuit of 2 related objectives. The first dealt with a determination of the effectiveness of the 4-H Club program in the 10 study communities and the second examined the effectiveness of different means of disseminating the research results to the rural public. Findings include: (1) Reorganized school districts provided more learning opportunities, the students had consistently higher achievement test scores, and they completed high school with a 6- and a 13-month advantage in mental maturity for boys and girls respectively; (2) The reorganized district leads to a higher matriculation in college after high school; (3) Boys from nonreorganized districts scored higher on measures of social adjustment than those in reorganized districts; (4) 4-H members showed no personal and social adjustment advantages; and (5) The most effective medium for presenting research findings was the lecture given by the researcher. (Author/LS)

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Technical Report No. 133

LONG-TERM STUDY OF EDUCATIONAL EFFECTIVENESS OF NEWLY FORMED CENTRALIZED SCHOOL DISTRICTS IN RURAL AREAS

By Burton W. Kreitlow

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Report from the School Reorganization Project
Burton W. Kreitlow, Principal Investigator

Wisconsin Research and Development
Center for Cognitive Learning
The University of Wisconsin
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This Technical Report is from the School Reorganization Project in Program 3, Planned Educational Change. General objectives of the Program are to develop and test organizations that facilitate research and development activities in the schools and to develop and test the effectiveness of the means whereby schools select, introduce, and utilize the results of research and development. Contributing to these Program objectives, the main objective of the Planned Change Project is to develop and test system-wide mechanisms which local school systems can employ in utilizing knowledge and innovations of the type generated by the Center. Change-agent teams have been organized in area school systems and their effectiveness is being evaluated.

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ABSTRACT

This study began in 1949. Its prime objective was to determine whether or not newly reorganized rural school districts were more effective than the smaller districts they replaced. Five experimental and five control communities were in the sample.

This investigation was longitudinal in design and examined two groups of subjects from their first year in school until 5 years after their high school graduation. The longitudinal nature of the investigation made possible the pursuit of two related objectives. The first dealt with a determination of the effectiveness of the 4-H Club program in the 10 study communities and the second examined the effectiveness of different means of disseminating the research results to the rural public.

Selected findings related to each of the above objectives are presented below.

Reorganization:

Reorganized school districts provided more learning opportunities; the students had consistently higher achievement test scores and completed high school with a 6-, and a 13-month, advantage in mental maturity for boys and girls, respectively. The reorganized district also leads to a higher matriculation in college after high school. Boys from nonreorganized districts scored higher on measures of social adjustment than those in reorganized districts.

4-H Clubs:

4-H Clubs attracted youths from the higher income and social status families with a higher average intelligence and from families previously involved in the program. 4-H members showed no personal and social adjustment advantages.

Dissemination of Research:

The most effective medium for presenting research findings was the lecture given by the researcher. As measured by knowledge outcomes, local volunteer leaders were as effective as professional personnel in leading the discussions which followed the presentation of research findings by lecture, film, or bulletin.

I
INTRODUCTION

In a short 20 years, Wisconsin has witnessed the near extinction of the one-room school house. The former school property is now used for vacation homes, local club meetings, and small businesses. School districts have shrunk to one-twelfth of their original number. While this upheaval took place in local school boards and county school-community sessions throughout the state, it soon became apparent an evaluation of school reorganization was urgently needed. Recalcitrant districts demanded proof that reorganized districts provided superior education. Officials from nearby states wanted the Wisconsin story to push their lagging school boards toward reducing school districts. This is the first comprehensive report of the 20-year-old longitudinal study to explore the effects school reorganization in Wisconsin has had on students and communities. The study began in 1949.

A 4-H study was added to the on-going Longitudinal Study of School District Reorganization in 1954. Earlier very little, if any, longitudinal research had been carried on in 4-H Club work. A 4-H Club investigation was incorporated into the longitudinal study because all 10 of the communities being studied had 4-H Clubs in operation. The purpose of the 4-H Club study section was also to determine program effectiveness.

Specifically, the objectives were:

1. To determine differences between 4-H Club members and nonmembers.

2. To determine the relationship of a member's background characteristics to age of joining the Club.

3. To determine the relationship of background characteristics to tenure of Club membership.

4. To determine the causes of 4-H Club dropout.

The third facet of the longitudinal study was developed and added in 1960. This third phase was prompted by the problem of selecting the most effective medium to disseminate the study results to the rural public. This study had three purposes. They were to:

1. Determine the relationship of selected neighborhood cultural characteristics to acceptance of educational concepts and programs.

2. Select the most effective medium to convey the study results to the public.

3. Determine the relative effectiveness of professional and lay leaders in presenting research findings.

II
DEVELOPMENT OF THE LONGITUDINAL STUDY

PURPOSES

A longitudinal study was initiated in 1949 to determine the effects of school district reorganization on students and communities. The two basic aims of the project were to ascertain whether or not school district reorganization is worthwhile in terms of time, effort, and expenditure of funds, and to determine the effects of such school district reorganization on the educational outcomes of the school. Specifically, the five objectives were:

1. To determine whether or not there are significant differences in opportunities provided the youngsters attending reorganized and non-reorganized schools.

2. To determine whether or not there are significant differences in academic and social achievement of youngsters attending reorganized and non-reorganized schools.

3. To determine the relationship between academic achievement and expenditure for education and to determine differences in expenditure between reorganized and non-reorganized school districts.

4. To determine whether or not there are any differences in the amount of farmers' social and economic contacts with the village center before and after school district reorganization.

5. To determine whether or not there are differences in the participation in adult educational activities and attitudes towards these activities of young adults who attended schools in reorganized and non-reorganized districts.

METHODOLOGY AND STUDY DESIGN

The basic design for this research project is pictured in Figure 1 and entails a comparison between communities with the traditional school district organization and districts which have been reorganized. Between 1949 and 1951, five pairs of communities were selected and all First Grade children in these communities during the first year of the study made up the sample group. Sample groups are represented in Figure 1 by A, B, and C. The youngsters in the sample, their school, their teachers, and parents were studied comprehensively when the youngsters were in Grade 1, 6, 9, 12, and 5 years after high school graduation.

Five years after the initial study began, a replication was started and involved the same communities investigated in the initial study and are shown in Figure 1 by A', B' and C'. The replication measured the effectiveness of school district reorganization for a second sample group; the first sample group started school during the first year of a community's reorganization and a second started 5 years after the initial reorganization was accomplished. This design facilitates both inter- and intra-community comparisons.

SELECTION OF SAMPLE

Ten Wisconsin communities, five with a reorganized school district structure and five with a traditional school district structure, were selected for the sample. Each reorganized (experimental) community was matched with a non-reorganized (control) community and the First Grade students in both types of

Year	School Grade 1	6	9	12	(5 years Post H. S.)	Community Pairs (R-NR)
1949-50	A					Winneconne-Denmark
1950-51	B					Kendall-Cazenovia; Blue River-Wauzeka
1951-52	C					Port Wing-Gilman; East Troy-Waterford
1952-53						
1953-54						
1954-55	A'	A				Winneconne-Denmark
1955-56	B'	B				Kendall-Cazenovia; Blue River-Wauzeka
1956-57	C'	C				Port Wing-Gilman; East Troy-Waterford
1957-58			A			Winneconne-Denmark
1958-59			B			Kendall-Cazenovia; Blue River-Wauzeka
1959-60	A'					Winneconne-Denmark
		C				Port Wing-Gilman; East Troy-Waterford
1960-61	B'					Kendall-Cazenovia; Blue River-Wauzeka
			A			Winneconne-Denmark
1961-62	C'					Port Wing-Gilman; East Troy-Waterford
			B			Kendall-Cazenovia; Blue River-Wauzeka
1962-63		A'				Winneconne-Denmark
			C			Port Wing-Gilman; East Troy-Waterford
1963-64		B'				Kendall-Cazenovia; Blue River-Wauzeka
1964-65		C'				Port Wing-Gilman; East Troy-Waterford
1965-66			A'	A		Winneconne-Denmark
1966-67			B'	B		Kendall-Cazenovia; Blue River-Wauzeka
1967-68			C'	C		Port Wing-Gilman; East Troy-Waterford
1968-69						
1969-70						
1970-71				A'		Winneconne-Denmark
1971-72				B'		Kendall-Cazenovia; Blue River-Wauzeka
1972-73				C'		Port Wing-Gilman; East Troy-Waterford

Fig. 1. Research Design — Longitudinal Study of Newly Formed Centralized School Districts in Wisconsin[1]

school communities were studied the year that their community was selected for the study. In the original group, the study started with 893 First Graders.

Figure 2 illustrates the diminution of the original study population through 17 years of the longitudinal study. By Grade 12, 40% of the study population had been lost by migration and dropouts. Summaries of the out-migration, in-migration, and dropouts showed no consistent differences between the reorganized and non-reorganized school communities.

In selecting school communities for the sample, a community with a reorganized district was selected first and then was paired with a non-reorganized community. The sample was selected from districts that had reorganized during the preceding year.

The selection in 1949 was based on the following criteria outlined by the Kreitlow (1952) Progress Report:

1. A district should have at least 800-1000 pupils between the ages of 6-18.

2. Each elementary school should bring together enough pupils so that children may attend a class of their own age group.

3. There should be approximately 300 students in each high school.

4. No child in Grades 1-6 should ride more than 40 minutes one way on the bus.

5. No high school student should ride a bus over 60 minutes one way.

6. There should be a staff of at least 12 teachers in each high school.

7. School buildings should be large enough to provide adequate accommodations for the educational offerings. Future building needs should not be overlooked.

8. The school district should comprise an area in which the people have common ideals, centers of interest, similar modes of living, and in which they depend upon one another for their general welfare.

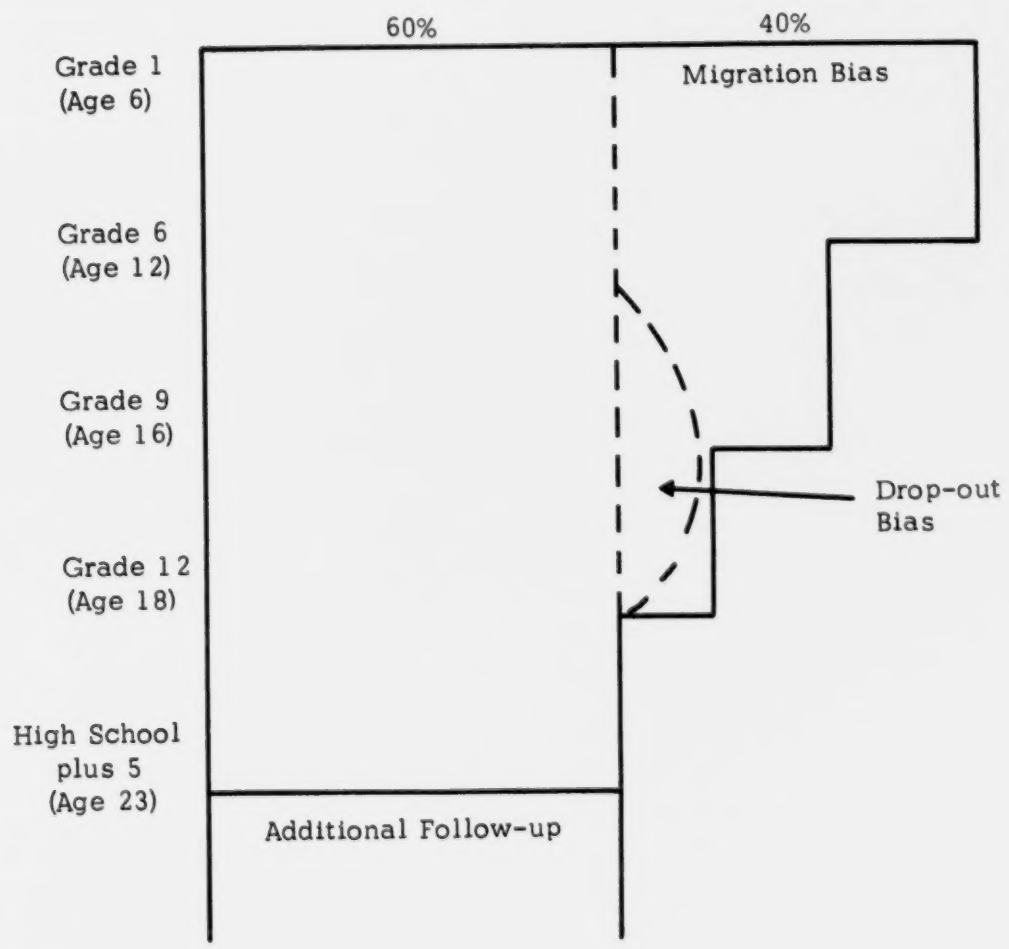

Fig. 2. The Longitudinal Profile Points of Contact

9. A satisfactory district should have sufficient valuation to support a modern educational program and have a single board of education elected by all the people living in the area served by the school. (In relation to 800-1000 pupils between the ages of 6-18, a sufficient valuation would be no less than $8,000,000.)

10. The overall program should provide educational opportunities for post-high school students and adults.

In 1949, the year the project began, one reorganized community was selected from among 37 newly reorganized districts. Of the 37 districts only four approached the standards of good organization noted in the criteria. In order to represent the total pattern of reorganization in Wisconsin, later selections had to include districts that didn't meet the criteria. Thus, of the five chosen, two of the reorganized communities selected met only a few of the criteria for effective reorganization, one met about half of these criteria, and two were selected because they most nearly represented the "ideal" reorganization as was spelled out by the criteria. These five experimental communities were in their first year of reorganization when first used in the longitudinal study, as Figure 1 illustrates. Four of the five control communities changed from a non-reorganized to a reorganized status during the course of the study. Researchers refer to these districts as "newly reorganized" during the transitional year. In Denmark's 1954-55 transitional year, pupils in the First and Sixth Grade were studied. When Wauzeka reorganized in 1955-56 and when Gilman reorganized in 1956-57, First and Sixth grades in both districts were being tested. Cazenovia became reorganized in 1964-65; during that year no Cazenovia grades were studied. In 1968, Waterford was still non-reorganized. The above changes are taken into account in certain of the studies reported.

After a reorganized community had been selected, it was paired with a community having a traditional multi-district administrative organization. The non-reorganized communities were matched with the reorganized communities on the basis of wealth, population size and distribution, topography, type of farming, nearness to cities and industries, type and distribution of roads and highways, distribution between farm and village residence, and area and enrollment of the districts. The sample included the wooded area of northern Wisconsin, the rich agricultural area of the central and southwestern part of the state, and the developing commuter area in the heavily populated and industrialized lakeshore in Milwaukee, Racine, and Kenosha Counties. Comparison of the selected districts with other rural districts on the basis of demographic data showed that these communities possessed features typical of rural school districts, not only in Wisconsin, but throughout the Midwest.

In spite of the care in selecting the sample of reorganized communities on the basis of established criteria and the matching of non-reorganized communities with similar demographic characteristics, there is a possibility of selection bias. This possibility should be kept in mind as the findings and conclusions are presented. The bias that may exist would lead to conservative findings regarding any potential differences.

Figure 3 shows the location of each of the communities in Wisconsin. Table 1 indicates the comparability of the selected reorganized and non-reorganized communities on certain factors used in matching the communities. The total equalized evaluation of tax purposes for each child in the reorganized and non-reorganized communities was very similar the year the study began—$12,087 and $11,795, respectively. It should be recognized that changes in valuation since 1949 have been great but the general equality among the selected reorganized and non-reorganized communities was maintained.

Isolating variables is difficult in a longitudinal study where improvement in areas as teacher training and social mobility may be the result of changes in society rather than a single factor of school reorganization. The sample was designed so that the non-reorganized school communities served as the control with which to compare the effectiveness of the educational programs in the reorganized school communities. Previous investigations of reorganized school districts had not used controls. The four major hypotheses of the long-term study were constructed with matched community control in mind.

The five communities represented various degrees of reorganization, ranging from the entire high school attendance area to as little as one-half of the area. In all instances, the total high school attendance area was included in the study but the reorganized part was first analyzed separately. This permitted an analysis of differences between the reorganized and non-reorganized parts of the reorganized communities. (See pages 46 - 48 for further explanation.) If no consistent differences appeared, the results were pooled.

Fig. 3. Locations of the 10 Selected Communities in Wisconsin[2]

Of the 30 separate studies included in this longitudinal project, eight of them used study samples other than the basis sample. This was dictated by the objectives of the closely related research. Two of the eight related studies deal with school reorganization. The first, a cross-sectional investigation of the relationship between factors of size, cost, and achievement in reorganized school districts, analyzed 30 reorganized school districts throughout rural Wisconsin, excluding the five districts in the longitudinal study (Bragg, 1960). The social and economic effect on communities when high schools close was the second subject. This was done by interviewing businessmen in the communities who were either employed by or owners of substantial business enterprises. Nine communities whose high schools were closed between 1940 and 1950 were compared with nine other communities of approximate size and geographic location in which high schools remained in operation through 1950 (Chitwood, 1955). The other six studies all deal with "Disseminating Research" and will be reported in that section.

DATA-COLLECTING INSTRUMENTS

A variety of means was used to assemble needed data. Data for measuring educational opportunity were collected by interview, questionnaire, observation, and review of school reports. Structured interviews were conducted with many First and Sixth Grade teachers in the ten communities. Pupil intelligence and educational achievement (Grades 1, 6, 9, 12) were measured by standardized test batteries (Kuhlmann-Anderson Intelligence Tests, Metropolitan Achievement Batteries, California Achievement Test, Chicago Reading Test), an interest inventory (Grades 1, 6, 9, 12) (using the "forced choice" technique adapted especially for this study), a personal-social behavior inventory (Grades 1, 6, 9, 12) (California Test of Personality Elementary Form AA), and a teacher rating of each child in her First and/or Sixth Grade class and committee ratings of each Grade 12 student on selected academic and background factors. A teacher-rating scale was developed expressly for this project by the author and the project advisory committee.[4] School operational and maintenance costs were found in the financial reports of school districts

Table 1

Comparison of the Reorganized (Experimental) and Non-reorganized (Control) Communities[4]

PAIRS OF COMMUNITIES		1950 Village Population	Topography	Type of Farming	Equalized Evaluation (1950)	Miles from Village to Nearest City	Approximate Area (Square Miles)	School Age Children (1950)
Reorganized	Non-Reorganized							
Winneconne		1,078	Rolling and Marshy	Dairy	11,500,000	11	120	749
	Denmark	1,012	Rolling	Dairy	14,031,490	13	180	1,066
Blue River		425	River Valleys Hills	Dairy-Corn	4,380,100	14	100	418
	Wauzeka	564	River Valleys Hills	Dairy-Corn	3,953,600	14	100	395
Kendall		558	Hilly	Dairy	4,500,400	18	100	476
	Cazenovia	403	Hilly	Dairy	4,261,200	18	100	372
Port Wing		300	Rolling	Cutover	4,799,605	30	300	694
	Gilman	402	Rolling	Cutover-Dairy	7,281,533	30	300	999
East Troy		1,052	Gently Rolling	Dairy	16,021,000	25	140	1,049
	Waterford	1,100	Gently Rolling	Dairy	18,072,700	20	160	1,195

filed in the State Department of Public Instruction. The Sewell Socioeconomic Status Scale was used to determine social-economic status scores of the families in the study and was included in the questionnaire responded to by parents of children in the sample.

ERROR LIMIT AND ASSUMPTION OF A SAMPLE

One of the major problems in this type of research is that of establishing acceptable limits for errors. In this longitudinal study, the error limit was set so that only in five chances out of 100 could results occur by chance. Results are not considered "statistically significant" when the number falls above five. However, in cases of identifiable consistency, even though the results are not statistically significant, they indicate direction and will be described as such.

The assumption is made that the carefully selected and matched sample is representative of children in rural community schools in Wisconsin. On the basis of this assumption sample statistics are used as the basis for decisions related to the hypotheses under study.

Although the data in this investigation were not experimentally produced, the terms "experimental" and "control" are used to describe the reorganized and the non-reorganized communities. This assignment of terms and the assumption of representativeness make possible the use of sample statistics to serve as a guide in making decisions following analysis of the data.

III

OUTCOMES OF EDUCATION IN REORGANIZED AND NON-REORGANIZED COMMUNITIES

BACKGROUND OF THE STUDY

Reorganization of school districts was one of the key controversial issues facing professional educators, lay leaders, school boards, taxpayers, and society in general when this study was planned. The problem was particularly critical in Nebraska, South Dakota, Minnesota, Iowa, Missouri, Michigan, and Wisconsin where a survey conducted as recently as 1959 showed that of 24,000 one-room schools operating in the United States then, 15,000 were in these eight states.[5] The N.E.A., U.S. Office of Education, and the individual states have all completed numerous surveys in these Midwestern states. The research on school reorganization has centered on statistical summaries of state school systems and the effect of local districts on communities, neighborhoods, students, and schools in terms of the educational opportunities they afford. Economic expenditures have also been considered.

School reorganization in Wisconsin has progressed for more than a century with the greatest changes occurring after legislation in 1947 established county school committees. Between 1949 and 1968, Wisconsin school districts were reduced from 6,000 to 472. The latter included two one-room schools, three two-room, and 76 with three rooms or more for a total of 83 districts with only elementary grades.[6,7] Legislation in other parts of the nation followed a similar pattern: in a 10-year period ending in 1966, the number of school districts in the United States fell to half. The number of districts dwindled from 104,000 in 1947 to 26,000 in 1968.

The problem of school reorganization is hardly new. State superintendents began to express dissatisfaction with the schools and the school district system shortly after Wisconsin became a state. Superintendent Azel P. Ladd, in the annual school report of 1854, recognized that town superintendents failed to supply the needed leadership to carry out the advice of the state superintendent regarding consolidation of smaller school districts into bigger and wealthier districts.[8] A law was passed in 1861 by the Wisconsin legislature which replaced the town superintendents with elected county superintendents. This legislation was followed by school district reorganization bills either passed, repealed, or amended in almost every session of the legislature thereafter. The legislation which followed 1861 gave power to the State Superintendent of Schools, provided for a system of town (township) school districts, tried to establish county school districts, and in 1965 removed the office of county superintendent and established Cooperative Educational Service Agencies (CESA).

The changing concept of school reorganization and the term "school consolidation" can be easily confused. Consolidation refers to the joining of any two or more school districts into one large system; the state legislature passed a law in 1897 which made voluntary consolidation possible. School boards, when advisable, could make arrangements for their pupils to attend the school of an adjoining district (Koyen, 1951, p. 18). At the turn of the century, consolidation was thought to be the answer to better school facilities, more highly trained and experienced teachers, and broader course offerings.

By 1931, this consolidation on a voluntary basis was found to be ineffective; in 1939 the state superintendent was given more power to decide in what counties school consolidation would promote better educational opportunities and monetary savings. The current definition of school reorganization, that of combining two or more districts into a single system, operating from either Kindergarten or Grade 1

through Grade 12, developed in Wisconsin in the late 1930's and early 1940's and was first formally used in the 1940's. Previously, completing Grade 8 was the acceptable norm in rural Wisconsin. This norm was related to lack of bus transportation and job requirements that called only for Eighth Grade graduation. As jobs demanded higher education and bus transportation became feasible to carry pupils several miles, 4 years of high school became the cultural norm. In 1950 the Joint Committee on Education in Wisconsin defined an integrated district as "one that operates Grades One or Kindergarten through Twelve...". Reorganization was described as:

> the formation of new district(s) as the result of the alteration and dissolution of existing districts. More specifically, it is a departure from the traditional school district pattern of organization and a move toward a school district operating Kindergarten or First Grade through the Twelfth Grade under the administration of a single board of education.[9]

The Reorganization Law of 1947 reduced the power of the superintendent under the law of 1939 "to that of advising and consulting with the county school committees, while the power of municipal boards to create, alter, or consolidate school districts remained in force" (Koyen, 1951, p. 18). By 1949, the committee which had been formed to study improvement of the Wisconsin educational system presented its findings. County committees were given much responsibility in school reorganization. The provisions for referendums, public hearings, and appeals to the circuit court on proposed changes lessened their possessing arbitrary powers. In the general objectives, emphasis was given to (1) equalization of educational opportunity, (2) equalization of educational costs, and (3) constant evaluation of the efficiency of the program, as well as continuous improvement in amount and quality of education provided.

There are many methods school consolidation and/or school reorganization can take place, hence, many different means of measuring its effectiveness. In the 1949-50 school year, the author used the "desirable characteristics of a good school district" and "suggested standards for district reorganization" listed in the "Guide for County School Committees" as a basis on which to begin measuring progress in district reorganization in Wisconsin. These ten characteristics are listed on Pages 4 and 5.[10] To evaluate the reorganization of school districts, it is necessary to compare non-reorganized and reorganized schools in as many fields of school life as possible, including educational opportunities, educational achievement, the effect on communities, and the type of economic support each demands.

EDUCATIONAL OPPORTUNITIES

The Sputnik race in the 1950's with its corresponding emphasis on science in the schools set off a chain of reactions in Wisconsin's educational system. School administrators in rural Wisconsin soon felt the impact. The expense of providing fully equipped science labs for a handfull of students in small school districts was prohibitive. Hiring language instructors for those few students in each school who needed language for college preparation was also costly per student. At this same time, the nation was concerned with physical fitness in America's youth. In the second area of concern, schools in both urban and rural areas examined their present physical education program to make sure youths met physical fitness standards tests. The first objective stated in the 1948 educational committee report was that of providing equalization of educational opportunities and the third area of concern to Wisconsin educators was that of providing opportunity for all the state's youngsters to develop special abilities. The gap between urban-suburban and rural course offerings was now recognized by school administrators, school boards, teachers, and parents throughout Wisconsin. Schools in rural areas voiced demands for special teachers of art, music, the handicapped, guidance, and adults. Again, a greater concentration of students would make financing of programs more feasible.

Four studies were completed measuring differences in educational opportunities provided in reorganized (R) and non-reorganized (NR) schools (Koyen, 1951; Eisemann, 1956; and Arend, 1962). The first two dealt with only one pair of communities; the third study included all five pairs of communities at the First and Sixth Grade levels. In 1966 the director of the study compiled a report,[11] in which he analyzed the latest data on all 10 communities.

Buildings, Equipment, Instructional Materials, and Special Services

The type of learning environment a school provides in materials, instruction, and

curriculum affects the growth and development of pupils. Facilities and the equipment provided determine the richness and variety of pupils' experiences. First Graders as of Fall 1949 in the community of Winneconne (R) and the Denmark community (NR) were compared in the first of the longitudinal studies. Five years later the same population was re-studied. Winneconne (R) clearly showed an advantage in both studies. Their schools provided more services and equipment and over a 5-year period showed greater growth than did the Denmark community schools. Transportation and health facilities and services were available to about the same degree in both communities, as was the availability of useful First Grade teaching materials. Table 2 compares the two school districts.

Several reasons exist for the wider utilization and availability of staff, services, and equipment in the Winneconne (R) community:

1. The Winneconne central school provided its services on a schedule to outlying schools in its district, while the Denmark schools needed to rely on the county office which served many school districts.

2. The teachers in the Winneconne community had more ready access to the equipment as a result of daily bus service among all schools in the district.

3. All Winneconne teachers were under one administrative organization and in one county, whereas Denmark teachers were in numerous districts and in three counties.

Table 2

Availability of Special Staff, Services, and Equipment as Indicated by Teachers of Elementary Schools[12]

	Winneconne		Denmark	
	1949	1954	1949	1954
Specialist or Supervisor of:				
Art	0 %	69.2%	0 %	0 %
Music	100.0	76.9	0	0
Handicapped	50.0	30.3	3.9	0
Guidance	0	69.2	0	3.1
Physical Education	100.0	100.0	3.9	0
Adult Classes	80.0	18.2	3.9	6.1
Transportation (Bus)	----	92.3	----	33.3
Movie Projector	100.0	76.9	39.2	11.6
Slide Projector	60.0	69.2	30.8	48.5
Radio	90.0	92.3	77.0	81.8
Piano	100.0	76.9	57.7	60.6
Art Works	50.0	53.8	61.7	69.7
Rhythm Materials	50.0	69.7	11.6	30.7
Phonograph	30.0	100.0	42.3	36.3
Play Room	30.0	38.5	38.5	36.3
Planned Testing Program	50.0	84.6	46.3	93.9
	N = 10	N = 13	N = 26	N = 33

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The third study, completed 11 years after the first study, included all five pairs of communities at the First and Sixth Grade levels (Arend, 1962). This study compared opportunities for pupils in R and NR communities in 1961: R schools, the study showed, had not continued to provide the level of opportunities for students that was noted earlier. The major improvements in provision of opportunity in R schools occurred during the time of the R process. Once reorganization had taken place, gains in opportunities for students in R schools kept about the same pace as gains in opportunities for students in NR schools.

Data from school records analyzed for Dr. Kreitlow's 1966 study showed the availability of incomplete audio and visual equipment in both reorganized and non-reorganized school communities. Four of the five reorganized communities reported availability of radios for classroom use. All but one of the five reorganized communities reported availability of television sets for classroom use. Three reported availability of both micro and over-head projectors. Of the schools reporting in the non-reorganized communities, three indicated availability of radio receivers and four of the five have indicated availability of television receivers. One reported availability of a micro and overhead projector.

Table 3 summarizes data relating to expenditure for audio-visual equipment in the 10 communities: R communities spent an average of $693.48 for audio-visual equipment in the year preceding data gathering at Grade 12; NR communities spent $741.81.

The availability of library resources for students in the high schools of R and NR districts was also compared at this time. Differences in available library resources as identified by the number of volumes in the library, the number discarded, the number added, and the number of class periods assigned for library work are shown in Table 4. NR communities had slightly more library resources than did the R. In comparing the matched pairs of communities, the R schools had more volumes in three pairs and the NR schools had more volumes in two of the pairs. There was no important relationship noted between the size of the library and in the volumes added. Nor was there a relationship between the number of books added and the number discarded. No characteristic points to a significant difference in library service between schools in R and NR communities in terms of volumes contained in respective libraries.

State Department records showed that three of the NR communities received recommendations to increase their services and one of the R districts received such a suggestion.

In the year when the students involved in the research were in Grade 12, the budget for

Table 3

Expenditure for Audio-Visual Equipment in Reorganized and Non-Reorganized School Communities the Year Previous to Testing [13]

School	R or NR	Total Expenditure	Total Enrollment	Per Pupil Expenditure
Winneconne	R	$ 500.00	295	$1.69
Blue River	R	118.20	126	.94
Kendall	R	1,336.33	295	4.52
Port Wing	R	227.02	157	1.45
East Troy	R	1,285.88	344	3.73
Denmark	NR	133.56	321	3.21
Wauzeka	NR	206.25	121	1.70
Cazenovia	NR	1,600.00	217	7.38
Gilman	NR	1,444.25	290	4.98
Waterford	NR	625.00	450	1.38

Table 4

Library Resources in R and NR School Districts[14]

School	R or NR	No. of Volumes in Library	No. of Volumes Discarded in Past Year	No. of Volumes Added in Past Year	No. of Periods Assigned for Library Work
Winneconne	R	2,671	15	183	7.0
Blue River	R	1,537	90	99	3.5
Kendall	R	1,873	36	218	2.0
Port Wing	R	1,929	56	219	2.5
East Troy	R	3,600	0	635	6.0
Denmark	NR	2,120	46	167	3.0
Wauzeka	NR	989	25	102	3.0
Cazenovia	NR	1,200	100	200	7.0
Gilman	NR	4,503	14	205	6.0
Waterford	NR	3,720	26	800	7.0
Totals	R	11,610	197	1,354	21.0
	NR	12,532	211	1,474	26.0
Average	R	2,322	39.4	271	4.20
	NR	2,506	42.4	295	5.20

library book expenditures was $5,910 for the 1,217 students in the R districts and $3,975 for the 1,399 students in the NR districts. For periodicals the preceding year, the expenditures were $1,108.69 and $1,099.00, respectively. Total library expenditures showed that the R districts were spending considerably more than the NR districts to upgrade their services —$8,983.00 and $6,404.00, respectively.

Reorganized schools do offer more total opportunities for their students. Their total advantage was about 16% as Table 5 illustrates.

Table 5

Comparison of Opportunities of First and Sixth Graders in R and NR Communities[15]

Opportunity Area	First Grade		Sixth Grade	
	Advantage %		Advantage %	
	Orig.	Rep.	Orig.	Rep.
Teacher Training	9.56R	11.01R	1.99R	14.22R*
Special Teachers	20.34R	38.18R	36.02R	40.64R
Special Equipment	14.43R	20.61R	14.23R	21.69R
Student Health	14.46R	7.80R	8.65R	4.87NR*
Other Opportunities	21.41R	14.35R	6.46R	17.95R
Total	16.36R	16.98R	12.95R	16.12R

*R in favor of reorganized
*NR in favor of non-reorganized

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The only area where there is no significant difference in opportunities between the two types of school is student health services. Reorganized schools made the largest increases in the areas of special teachers and special equipment. In 1960, a further breakdown of the availability of teaching materials reinforced the superiority of reorganized districts in these areas as Table 6 illustrates.

Teacher Training

In the 1950's it was not uncommon to find elementary teachers in most Wisconsin rural communities with a scant 2-3 years of formal education beyond high school. County normal graduates filled the ranks of teaching posts throughout the state. Not until the 1960's was a statute passed requiring beginning teachers applying for a teaching license in Wisconsin to have a bachelor's degree. The law takes effect in 1972. Teacher training was examined in three studies to denote differences between reorganized and non-reorganized communities. Winneconne and Denmark communities were compared in two studies done at the First and Sixth Grade level (Eisemann, 1956; Koyen, 1951).

In the Winneconne and Denmark communities, the age of teachers and the amount of training beyond high school was nearly the same as Table 7 illustrates. Denmark community teachers had slightly longer teaching experience. The schools differ in that the Denmark community (NR) teachers often teach more than one grade, although they spend about the same amount of time with individual children. Despite the longer tenure of Denmark teachers in their present schools, the Winneconne teachers showed greater participation in community affairs. When teaching experience was compared in all 10 community high schools, the mean number of years for teachers in NR schools was 8.81 years; for teachers in R schools, it was 6.78 years.

In 1945-55, only two out of the 13 Winneconne teachers and three out of the 33 Denmark teachers teaching Sixth Grade students had completed their bachelors' degrees, even though many in both communities attended summer sessions.

An additional study, dealing with teacher training which reviewed past studies and added results of a replication done in 1959-62, supported earlier findings (Arend, 1962). A higher percentage of First and Sixth Grade teachers in reorganized communities met the criteria for the higher educational level as listed in Table 8. By 1967-68, only three out

Table 6

The Availability of Useful Sixth Grade Teaching Materials and Facilities in the Schools of Ten Wisconsin Communities, October 11, 1960[16]

Schools	Collateral Reading		Maps		Basic Science Equipment		Basic Athletic Equipment		Project Work Table		Subject Matter Corner		Art Materials		Number of Educational Radio Programs Listened to Regularly						
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	1	2	3	4	5	6	0
Total Reorganized* N = 46	43	3	35	11	19	27	44	2	34	12	36	10	42	4	3	12	12	8	4	1	1
Non-Reorganized N = 69	60	9	52	17	12	57	60	9	43	26	37	32	59	10	11	11	23	15	1	0	8

*Includes youngsters in all reorganized parts of the reorganized community and those in the community who were not a part of the reorganized district when the study began.

Table 7

1954-55 Status of Winneconne and Denmark's First and Sixth Grade Teachers[17]

	Winneconne Mean Score	N = 13 Range	Denmark Mean Score	N = 33* Range
Number of Years Taught	11.77	2 - 31	12.61	1 - 48
Years at This School	3.46	1 - 7	5.85	1 - 25
Training Beyond High School	3.00	2 - 7	2.39	1 - 4
Age	37.25	21 - 61	35.43	20 - 68
Membership in Local Organizations	1.69	0 - 6	.456	0 - 5
Offices in Local Organizations	.461	0 - 3	.091	0 - 2
Invitations to Participate in Local Programs	.308	0 - 2	.303	0 - 2

*The large number of First and Sixth Grade teachers in the Denmark community is due to the high number of one-room schools still in existence at this time.

Table 8

1954-55 Status of Winneconne and Denmark Teachers as Related to Professional Advancement[18]

	Winneconne	Denmark
Type of Teaching Certificate		
Permit	1	2
One-year license	3	3
Five-year license	5	14
Life certificate	4	3
Other	--	11
In-Service Training		
Number of Days - Mean	6.62	4.97
Range	0 - 10	2 - 9
Teachers Helped Plan Program	4	15
Additional Education		
Attended one of last two summer sessions	11	10
Plan to attend one of the next two summer sessions	10	14
Classroom Visits	77%	51.6%
	N = 13	N = 33

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of 47 Winneconne elementary and junior high teachers had not attained a bachelor's degree. In the Denmark community, 18 teachers had a 2-year degree; one teacher attended college 3 years; and the rest of the 12 teachers held bachelors' degrees. When teachers in all the communities were compared in 1966 with regard to the number of years of education they attained beyond high school, the mean number of years for teachers in R schools was 4.15 years, compared with 4.23 years for those in NR schools as shown in Table 9.

The latest research examined two important learning opportunities for teachers within the system: in-service education and the school's professional library. Table 9 shows several selected factors which allowed teachers to develop their teaching skills and gain a more thorough understanding of educational concepts.

In-service training refers to those days of the school year devoted to teacher-centered learning. Included in an in-service program may be several factors: orientation to the school system, explanations of new techniques and equipment, curriculum development, preparation for parent-teacher conferences, and even readying the classroom for pupils. These are only a few of the activities which may be included under the classification of "in-service training." Therefore, the depth and breadth of these days will vary from school to school. Because of this possible variation and in order to judge the adequacy of the program, the State Department of Public Instruction requires a complete schedule of the year's in-service activities from each school.

In-service training may take place before classes have begun, during the school year, or after classes have been concluded for the year. It may involve only the teaching staff of the school, or it may include "experts" from other areas. Among the many factors involved, only the number of days devoted to in-service training are included here and are a sample of this total opportunity.

Of the ten schools, six scheduled 5 days of in-service training; two, 4 days; and two, 2 days. The two schools scheduling only 2 days were both NR communities. The mean number of days of in-service training for the R schools was 4.6; for the NR schools it was 3.8 days.

The State Department of Public Instruction commented on each school program as it received the information for the year. Not only were Cazenovia and Wauzeka instructed to increase the length of in-service training

Table 9

Differences Between Elementary Teachers in R and NR Districts, 1966[19]

School	R or NR	No. of Full-Time Teachers	Mean Salary	Mean No. of Years of Experience	Mean No. of Years of Schools After High School	No. Staff with Special Licenses (temporary)	No. of Staff taking Summer School or Correspondence
Winneconne	R	20	$5,391.55	10.05	4.10	1	13
Blue River	R	8	5,112.50	7.06	4.00	1	3
Kendall	R	19	5,140.57	6.00	4.15	3	9
Port Wing	R	10	5,231.54	4.55	4.27	0	1
East Troy	R	21	6,055.23	6.26	4.23	0	11
Denmark	NR	14	4,781.28	6.14	3.92	0	3
Wauzeka	NR	8	4,625.00	9.31	4.56	0	0
Cazenovia	NR	11	5,272.72	8.45	4.27	3	3
Gilman	NR	17	5,477.94	9.55	4.11	0	4
Waterford	NR	23	5,269.56	10.60	4.32	0	5

but so also was Kendall. Cazenovia, Wauzeka, and Denmark were advised to strengthen their in-service programs. Gilman was commended for improving its program. These records clearly favored in-service programs in reorganized districts.

In 1955, the Winneconne and Denmark community schools were asked about their in-service training program. Although teachers in both communities participated, in both cases programs all too frequently were identified as being meaningless to them. When interviewed, teachers had difficulty recognizing what constituted in-service training time and even more difficulty in recalling the theme or value of the time spent.

Another effective device for in-service training is the use of classroom visitations by teachers. Of the Winneconne teachers 77% indicated time was made available for such visits, while only 51.6% of the Denmark teachers had similar opportunity.

A school's professional library is the second major opportunity for teachers' continued learning; it refers to those books which deal directly or indirectly with the teaching profession. Table 10 shows the extremely large range in the size of professional libraries in the ten schools, ranging from 14 books at Wauzeka to 155 books at Winneconne. The mean number of books for schools in R districts was 70.6, while in NR districts it was 39.8.

The number of professional journals subscribed to by each district also varied. The smallest number of journal subscriptions (three) was found at Wauzeka (NR). The largest number of journal subscriptions was found at East Troy (R).

It would be expected that schools with larger staffs would order duplicate copies of professional journals so that circulation would be improved. It is possible, therefore, that East Troy, with a large staff, would order duplicate subscriptions of several magazines; and Wauzeka, with a smaller staff, would not need duplication. This does not explain the fact, however, that Waterford (NR) with the largest staff of any of the 10 schools, rated near the bottom of the group in terms of journal subscriptions.

The mean number of journals subscribed to by R schools was 8.8; for NR schools, it was 6.4.

In total, the R schools appropriated $475 in 1966 for professional libraries for a mean of $95 per school. The NR schools appropriated $425 for a mean of $85 per school.

A comparison was also made in the 1966 report between teachers in R schools and

Table 10

Staff Opportunities for Learning in R and NR School Districts, 1966[20]

School	R or NR	No. of In-Service Days	No. of Volumes in Professional Library	No. of Prof. Journals Subscribed	Appropriated for Professional Library
Winneconne	R	5	155	10	$200.00
Blue River	R	4	15	6	25.00
Kendall	R	4	89	4	50.00
Port Wing	R	5	44	9	50.00
East Troy	R	5	50	15	150.00
Denmark	NR	5	80	13	150.00
Wauzeka	NR	2	14	3	50.00
Cazenovia	NR	2	15	6	100.00
Gilman	NR	5	60	5	25.00
Waterford	NR	5	30	5	100.00

teachers in NR schools with regard to salaries. This revealed that the average (mean) salary for teachers in R schools was $5,386.30, and for teachers in NR schools it was $5,085.35 —for a difference of approximately $300 in favor of staff members of R schools.

Table 11 indicates the number of teachers, R and NR, whose salaries fitted into selected ranges from $4,000 to $8,000.

There was a noticeable difference between R and NR schools within the $4,000 to $4,500 salary bracket. Exactly 10.25% of the teachers in R districts were in this lowest salary bracket, while 21.91% of NR were in this bracket. Both R and NR schools had a large percentage of their teachers represented in the $4,500 to $5,000 salary bracket: 25.64% of reorganized and 30.13% of non-reorganized; 26.93% of reorganized teachers are in salary range $5,500 to $6,000 while there is 17.8% of non-reorganized in this category. Reorganized and non-reorganized schools are about equally represented in the number of teachers whose salaries range from $6,000 to $7,000; 8.97% reorganized and 9.57% non-reorganized. There is an important difference, however, within the $7,000 to $8,000 salary range. In all, 11.53% of the teachers in R schools were included in this top bracket, whereas only 1.36% of the teachers in NR schools earned salaries within this range.

Considering the entire $4,000 to $8,000 range, it was noted that 79.47% of R teachers earned less than $6,000 and 89.01% of NR teachers earned less than $6,000.

Building Capacity and Class Size

A third study area considered in analyzing educational opportunity was whether the differing capacities of the high school buildings in R and NR communities were such that the opportunities in the two types of communities were different. In Table 12, the enrolments are categorized by size. Three schools had an enrolment between 100-200; four schools between 201-300; two schools between 301-400; and one school between 401-500.

Of all 10 schools, the smallest and the largest enrolments, 121 and 450, were in NR schools, However, the low enrolments for both types of schools were very similar; 121 for NR schools, and 126 for R schools. There was a larger difference between the high enrolment schools; 344 pupils was the largest enrolment in a reorganized school, while 450 was the top enrolment in NR schools.

A total of 2,616 students were enrolled in the 10 high schools of both types of districts. A total of 1,217 students were enrolled in R schools, for an average of 243.4 pupils per school; and 1,399 were in NR schools, for an average of 279.8 per school.

In terms of building capacity and total enrollment, it appeared that three schools were faced with a capacity enrolment. Building capacity for Winneconne (R) was 300 and the enrollment during 1960-61 was 295. Gilman (NR) had a building capacity of 300 and an enrolment of 290. Waterford had a capacity and an enrolment of 450.

East Troy (R) and Denmark (NR) schools, appeared to have the greatest capacity for enrolment expansion. East Troy operated with five new classrooms and music rooms at the high school level for the first time during 1962-63.

On June 24, 1959, Winneconne lost a bond referendum for building an addition to the school. School leaders recognized the need

Table 11

Differences Between Salary Range of Elementary Teachers in R and NR Communities[21]

	4,000+ 4,500	4,500+ 5,000	5,000+ 5,500	5,500+ 6,000	6,000+ 6,500	6,500+ 7,000	7,000+ 7,500	7,500+ 8,000	Total No. Teachers
Reorganized									
Number	8	20	21	13	5	2	7	2	78
Percent	10.25	25.64	26.93	16.66	6.41	2.56	8.97	2.56	
Non-Reorganized									
Number	16	22	13	14	4	3	1	0	73
Percent	21.91	30.13	17.80	19.17	5.47	4.10	1.36	0.00	

Table 12

High School Building Capacity and Enrolment in R and NR Schools[22]

School	R or NR	Building Capacity	Total Enrolment	Boys	Girls
Winneconne	R	300	295	129	166
Blue River	R	160	126	71	55
Kendall	R	325	295	152	143
Port Wing	R	200	157	79	78
East Troy	R	425	344	178	166
Denmark	NR	400	321	160	161
Wauzeka	NR	175	121	65	56
Cazenovia	NR	250	217	111	106
Gilman	NR	300	290	142	148
Waterford	NR	450	450	232	218

Total: 2616 Total R: 1217 Total NR: 1399
Average R: 243.4 Average NR: 279.8

to provide classroom space for the expanding student body. Since the time of completion of the field work covered by this research, the three undercapacity schools, reorganized and non-reorganized, did build up to adequate size.

The State Department of Public Instruction informed Kendall that it noted with favor the new high school building and the enlarged district but it viewed with disfavor the operation of two high schools in the district for an extended period of time, feeling it was not justified..."Continued payment of aids will be somewhat dependent upon the progress made to solve this problem."

Following the completion of field work on this phase of the research, the reorganized district, of which Kendall is a part, did build new facilities and provided high school-level education in one building.

The 1,217 students in the reorganized, and the 1,399 in the non-reorganized, communities were served by 87 and 84 high school teachers, respectively, giving a student-to-teacher ratio that is favorable to those students in R districts.

A review of the State Department of Public Instruction's records showed that teacher duties had all been assigned except the responsibilities for health education in two of the R districts, and for guidance in one R district.

The high school principals in NR districts were given more duties in addition to their regular assignments than were principals in R districts. They averaged nearly one additional assigned duty.

In the provision of guidance services to students, the two types of districts were very similar with total staff in the five R and NR communities assigned to guidance responsibilities, being 3.4 and 3.3, respectively.

Table 13 shows that the average high school enrolment in R districts was somewhat smaller than that of NR districts: the average for reorganized being 243.4 pupils and for non-reorganized being 279.8 pupils. For all 10 schools, the range in student enrolment is from 121 in Wauzeka (NR) to 450 in Waterford (NR). The range within the R schools only was from 126 in Blue River to 344 in East Troy.

The school having the highest total enrolment also had one of the highest pupil/teacher ratios. The highest pupil/teacher ratio occurred in the school having the third highest enrolment. The overall range for the 10 schools for pupil/teacher ratio extended from 15 pupils per teacher to 20 pupils per teacher. Within the R districts, the average pupil/teacher ratio was 15.42:1 and in NR districts it was 17.84:1.

Table 13

Enrolment Differences Between R and NR Districts[23]

School	R or NR	Enrol-ment	Pupil/ Teacher Ratio	No. of Class Sections with 35 or more Pupils	No. of Class Sections with 15 Pupils or less	No. of Phy. Ed. Classes with 40 or more Pupils	No. of Phy. Ed. Classes with 20 Pupils or less
Winneconne	R	295	15:1	2	3	4	0
Blue River	R	126	15:1	0	3	0	0
Kendall	R	295	15.5:1	4	25	1	3
Port Wing	R	157	16.5:1	0	11	0	0
East Troy	R	344	15:1	0	20	0	2
Denmark	NR	321	20:1	0	2	-	-
Wauzeka	NR	121	15.8:1	0	9	0	0
Cazenovia	NR	217	17:1	1	1	0	1
Gilman	NR	290	17.9:1	0	7	0	1
Waterford	NR	450	18.5:1	0	1	0	0
Summary (Means)	R	243.4	15.42:1	1.02	12.4	1	1
	NR	279.8	17.84:1	.20	4	0	.40

There were relatively few class sections where the number of students exceeded 35. Within the reorganized schools, the total number of class sections having more than 35 pupils was six, while there was only one class section within the five non-reorganized sections with more than 35 pupils.

The R schools had a total of 62 class sections where the number of pupils was 15 or less. Within the NR schools, there were 20 class sections having 15 pupils or less. A total of five physical education class sections were reported by R schools as having 40 or more pupils. Within the R schools, there were five physical education class sections having 20 pupils or less. Within the NR schools—with four of the five schools reporting, there were two physical education class sections with 20 pupils or less.

CURRICULUM

Table 14 identifies the general academic and special curricular credit offerings used to compare opportunity in the 10 communities of the study. Curricular areas where important differences existed favoring R districts were in foreign language and art. The only difference involving two or more schools favoring the NR school district was in physical education. The R schools had a one-school advantage in home economics and industrial arts, while the NR schools had that advantage in personal typing and geography.

A review of Table 15 shows considerable similarity between the R and NR communities on school-lunch programs and the special milk program, and only minor differences on summer classes and classes for the handicapped.

ADULT EDUCATIONAL PROGRAMS

The reorganized communities provided a variety of adult classes in home economics and handicrafts for the women of the community. Veterans were offered an "on-the-job" training program carried on by an instructor in agriculture from the central school. These classes also met in the village hall and the instructor visited veterans on their farms. No attempt was made in several of the NR communities to provide an educational program for adults. In East Troy (R), a program

Table 14

Curriculum Offerings for Which Credit is Given in R and NR Communities[24]

	Reorganized					Non-reorganized				
	Winne-conne	Blue River	Kendall	Port Wing	East Troy	Denmark	Wauzeka*	Cazenovia	Gilman	Water-ford
Agricul-ture	X	X	X	X	X	X	X	X	X	X
Business Ed.	X	10-12 X	X	10-12 X	10-12 X	10-12 X	10-12 X	X	10-12 X	10-12 X
Driver Ed.	10 X	10 X	10 X	10-11 X	10 X	10-12 X	10 X	10 X	10 X	10 X
French					X	X	10-12 X			
Spanish	X		X		X	X	10-12 X			
German			X				10-12 X			11-12 X
Latin	X						10-12 X			10-12 X
Health & Safety		X	X	X	X	X		X	X	X
Home Econ.	X	X	X	X	X	X	X	X	X	X
Industrial Arts	X	X	X	X	X	X	X		X	X
Language Arts	X	X	X	X	X	X	X	X	X	X
Math	X	X	X	X	X	X	X	X	X	X
Science	X	X	X	X	X	X	X	X	X	X
Social Studies	X	X	X	X	X	X	9,11,12 X	X	X	X
Art	X			11-12 X	X				X	
Personal Typing									9 X	
Geography									X	
Physical Ed.									X	

*Russian by University of Wisconsin Correspondence only.

Table 15

A Comparison of Selected Special Services Available in R and NR Communities[25]

School	R or NR	Summer Class	Classes for Handicapped	School Lunch	Special Milk Service
Winneconne	R	Yes	0	Yes	Yes
Blue River	R	No	0	Yes	No
Kendall	R	No	0	Yes	Yes
Port Wing	R	No	0	Yes	Yes
East Troy	R	No	0	Yes	Yes
Denmark	NR	No	Speech Correction	Yes	Yes
Wauzeka	NR	No	0	Yes	Yes
Cazenovia	NR	No	0	Yes	Yes
Gilman	NR	--	0	Yes	Yes
Waterford	NR	No	0	Yes	No

was developed that involved more adults in continuing education than participants in all NR communities combined.

SUMMARY OF EDUCATIONAL OPPORTUNITIES IN REORGANIZED AND NON-REORGANIZED COMMUNITIES

Opportunities Favorable to Reorganized Schools

—services and equipment, especially basic science equipment, subject matter corner, project work table

—special teachers

—in-service training time for teachers

—more books in professional libraries

—slightly higher mean salary, a higher percentage earning, $7-8,000 than teachers in non-reorganized schools

—slightly lower students to teacher ratio, favorable to students in reorganized schools

—principals responsible for regular assignment only. In non-reorganized schools many principals are assigned additional duties

—foreign languages and art

—adult education programs

Opportunities Favorable to Nonreorganized Schools

—money spent on audio-visual equipment

—library resources, although reorganized districts are spending considerably more to upgrade their services

—teachers with longer teaching experience

—physical education program

Opportunities Nearly Equal in Both Types of Communities

—rate of progress nearly the same in reorganized and non-reorganized communities after initial improvement made

—incomplete audio-visual equipment

—student health services

—teacher training beyond high school

—building capacity

—guidance services

EDUCATIONAL RESULTS (OUTCOMES)

Central to the case for reorganized schools is pupil achievement and development, illustrated by intelligence, academic achievement, and personal and social behavior test scores. No matter how many additional opportunities are provided, if the individual pupils fail to show greater progress under the reorganized system, its assets can indeed be questioned. Since the longitudinal study began in 1949, the percentage of Wisconsin high school graduates seeking additional education has steadily increased. Over only a 5-year period between 1963 and 1967 the proportion grew from 39.3% to 44.4%.[26] Their high school achievement will be reflected in college admissions and performance. Rural schools have a challenge to prepare their students for acceptance into higher institutions and their consequent adjustment.

Intelligence, achievement, and personality test scores were compared between boys and girls in R and NR school systems at the Grades 1, 6, 9, and 12 levels. In addition, teachers rated individual students' emotional stability and social qualities. The socioeconomic status of the pupils' families and the parents' choice of their child's education was also measured and compared. The testing instruments consisted of the following:

First Grade

Chicago Reading (A_1)
Interest Record
Kuhlmann-Anderson (Gr_1)
Met Ach't (R prim)
Parent Questionnaire
Teacher Questionnaire

Sixth Grade

Activity Questionnaire
Chicago Reading (C_1)
Interest Record
Kuhlmann-Anderson (F)
Met Ach't (R inter)
Parent Questionnaire
Personal-Social Inventory
Teacher Questionnaire

Ninth Grade

Activity Questionnaire
Interest Record
Kuhlmann-Anderson (H)
Met Ach't (R adv)
Personal-Social Inventory

Twelfth Grade

Activity Questionnaire
California AA part I
California AA part II
California AA part III
California XYZ, reading
California XYZ, math
California XYZ, language
Committee Rating
Interest Record
Kuhlmann-Anderson (H)
Parent Questionnaire
Personal-Social Inventory

Study Sample

The students used in these analyses were only those who had been part of the study in First Grade between 1949 and 1952, and for whom complete data were available at the times when the communities were investigated through 1963. It is in relationship to this group of 300 boys and girls that the following analyses were made and the findings reported. The replication group, which began the First Grade in 1954, is not included here.

Reorganized and Non-Reorganized Parts

In the initial selection of R communities for this investigation, certain communities had not completed the reorganization process. This necessitated an estimate of the future boundaries of the district when reorganization was actually completed. This had not occurred in the selected communities at the time the First Grade subjects were tested in 1949 through 1951 but all of these areas later became part of the reorganized community. Throughout the investigation, this early "non-reorganized part" of the reorganized communities has been kept separate, subject to pooling with the "reorganized part" if and when no significant differences were noted between the two sections.

At the First and Sixth Grade levels there were no significant differences identified between the R and NR parts of reorganized communities. At the Ninth Grade level there were no significant differences between girls in the R and NR segments of the reorganized school communities. However, the boys in the reorganized part scored higher in all subtests than did those attending non-reorganized parts of the same communities. Scores were significant for Arithmetic Fundamentals, Geography, Science, Spelling, and Total Achievement.

There were no significant differences between boys and girls in the non-reorganized part and the reorganized part of the communities classified as "reorganized" at the Twelfth Grade level. However, scores between the boys in the non-reorganized and the reorganized

part of the reorganized districts tended to favor boys in the reorganized part with 10-point spread on the total achievement score. The reverse was true for girls, with a 10-point advantage for those in the non-reorganized part.

Thus, with differences identified at only one point in time (9th Grade, boys only) it was possible to pool the results from the non-reorganized factors. Henceforth, analysis of achievement factors will be used in the combined groups and they will be labeled "Reorganized."

There were also no significant differences between students in the R and NR parts of the R districts on socioeconomic and personal and social behavior scores at the 12th Grade level. This made it possible to also pool these results into a single group labeled "Reorganized."

There were some consistencies of favorability on personal and social behavior scores for the boys in the non-reorganized part and for girls in the reorganized part of the reorganized school communities.

Academic Factors—Achievement and Ability Scores

Before measuring achievement scores, it is necessary to establish that there were no significant differences in mental ability between pupils in NR and R school districts at the First Grade level. Analysis showed that they started with approximately the same average intelligence.

The following comprehensive Tables summarize academic achievement for students in Grades 1, 6, 9, and 12 who stayed in the R and NR communities throughout 12 years of their elementary and high school years.

For additional comparison, a measure for intelligence test scores is added at each grade level for pupils in R and NR school systems. The measurement used here is mental age because of the better picture it gives of pupil mental maturity. The mental age equivalent of a given raw score on an intelligence test indicates the age level for which this is a median raw score. [The results of the intelligence test are given in this form because the Kuhlmann-Anderson test was developed on the basis of an average child moving ahead in mental age each year. The following are the theoretical mental ages for the average child at the given age and grade level used in this study: 6 years—Grade 1—72 months; 12 years—Grade 6—144 months; 15 years—Grade 9—180 months; 18 years—Grade 12—216 months.] Because the IQ tests encompass a broader area of abilities, the scores are less subject to direct change by differences in school environment than are achievement scores. This is illustrated in the longitudinal study by the cumulative influence of opportunities as the child moves through school.

GRADE ONE. At the First Grade level there were no significant differences in academic achievement between pupils in R and NR schools. The actual mean differences which existed favored R subjects eight times and favored NR subjects fourteen times.

GRADE SIX. At Grade 6 a sharp change in achievement had occurred. There were 16 instances in academic achievement categories where significant differences had developed and all favored those subjects in the reorganized districts. There were two significant differences noted favoring those subjects in non-reorganized districts.

GRADE NINE. At Grade 9, the same pattern prevailed. There were fewer academic achievement measures but among these, all significant differences favored subjects in the reorganized communities. There were five such instances.

GRADE TWELVE. At Grade 12, significant differences favoring reorganized subjects existed in Total Reading and in Biological Science. Mental age differences were significantly different for the first time in 12 years, over 1/2 year for boys and over 1 year for girls (in both instances favoring reorganized communities).

Summaries

Comprehending achievement and ability differences with a high number of variables can be confusing. Figures present the same data in more concise form. Figure 4 shows the change in the advantage of non-reorganized to reorganized districts between Grades 1 and 6 and the consistency of this advantage in favor of reorganized school communities from Grade 6 through Grade 12. [See p. 36.]

Figure 4 shows only the number of subtests on which a group measured superior to a matched group. Figures 5 through 8 illustrate the differences in actual scores for Total Reading, Total Science, Total Achievement, and Mental Age.

Table 16

A Comparison of Mean Scores in Selected Achievement Factors for those Boys and Girls Who Remained in R and NR School Communities from Grades 1 through 12[27]*

Achievement Item	Type of District	Boys				Girls				Significant R vs. NR
		Grade 1	Grade 6	Grade 9	Grade 12	Grade 1	Grade 6	Grade 9	Grade 12	
Comprehension of Paragraphs and Directions	R		27.4				31.4			Grade 6
	NR		26.3				28.5			
Comprehension of Paragraphs	R	10.0	22.0			12.0	24.0			6
	NR	9.6	21.0			12.9	22.0			
Comprehension of Stories	R		7.9				8.8			6
	NR		7.7				8.5			
Comprehension of Words (Chicago)	R	8.5	33.1			9.3	37.0			6
	NR	8.7	32.6			9.8	34.4			
Total Comprehension	R	31.7	97.1			37.8	103.2			6
	NR	32.7	88.6			40.0	94.6			
Comprehension of Sentences	R	4.0	18.6			4.0	20.2			6
	NR	4.0	17.3			4.6	18.5			
Reading Comprehension	R	7.2	37.4	41.0	46.8	8.3	45.8	45.2	53.3	6
	NR	7.4	36.6	40.3	46.0	9.2	40.1	42.1	48.2	
Total Reading (Metropolitan)					California				California	6
	R	58.9	73.3	79.2	83.6	69.6	86.6	88.6	93.3	9
	NR	54.7	71.1	78.0	80.7	68.8	76.3	82.2	85.0	12
Reading Vocabulary		Recognition				Recognition				
	R	18.0	36.2	38.6	36.3	19.8	40.8	43.5	39.6	6
	NR	17.6	34.5	37.8	34.9	20.6	36.3	40.3	37.2	
Total Science	R		30.9	37.4	106.7		32.5	38.9	110.1	6
	NR		28.3	36.8	105.4		28.7	36.3	104.9	
Total Social Studies	R		51.5	56.5	117.7		56.8	59.7	123.1	6
	NR		48.6	58.1	113.9		50.2	55.6	115.6	

* Variations in standardized test measures are a result of changes in tests as grade level increased.

Original and Replication Study Comparisons

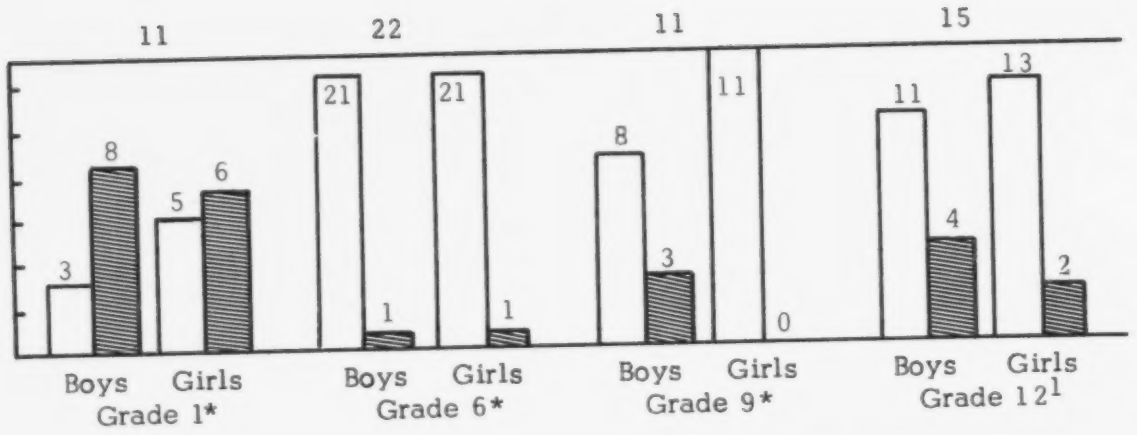
The data on achievement to this point have been taken from the original study begun in 1949 when five of the ten communities were still non-reorganized. In 1968 a study was done on academic achievement before and after reorganization (Patten, 1968). The former control communities were classified as experimental for this design.

The object of the research was to see if differences in achievement over a 15-year period existed between communities which started out non-reorganized and by the 9th Grade level became newly reorganized, and those communities which were newly reorganized by 1949. In this case, the latter became the control.

Table 17

A Comparison of Mean Scores in Selected Achievement Factors for those Boys and Girls Who Remained in R and NR School Communities from Grades 1 through 12[28]

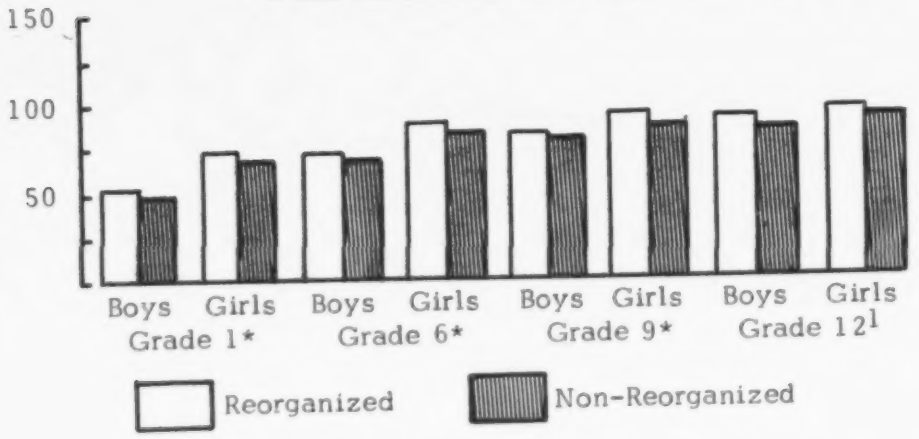
Achievement Item	Type of District	Boys				Girls				Significant R vs NR
		Grade 1	Grade 6	Grade 9	Grade 12	Grade 1	Grade 6	Grade 9	Grade 12	
Social Studies - History					& Civics				& Civics	
	R		22.7		116.9		24.8		123.1	
	NR		22.0		113.9		22.9		115.6	
Spelling	R		22.1	21.7	14.0		29.8	31.1	19.3	
	NR		22.4	21.1	14.2		19.6	30.4	19.7	
					California					
Total Achievement Metropolitan	R	96.5	284.2	317.6	511.5	109.8	334.5	364.4	561.4	
	NR	96.4	274.1	318.8	503.5	112.9	299.9	342.9	534.9	6
Literature Metropolitan	R		25.0	28.5			30.2	33.2		
	NR		24.4	27.7			27.0	28.9		
Social Studies Geography	R		28.8	28.6			32.0	30.6		
	NR		26.6	29.9			27.1	28.3		6
Comprehension of Maps	R		4.2				4.7			
	NR		4.3				4.8			
Total Comprehension Maps, Stories, Directions, Paragraphs	R		40.1				45.1			
	NR		38.3				41.7			6
Total Achievement (Chicago)	R		50.6				58.1			
	NR		47.1				49.9			
					Reasoning				Reasoning	
Arithmetic Problems	R		17.7	18.7	38.4		20.8	22.0	41.2	6
	NR		16.7	20.0	37.8		17.5	19.9	37.0	9
Comprehension of Directions	R	3.0	6.5			3.5	7.0			
	NR	3.0	5.7			3.6	6.5			6
		Number Concept				Number Concept				
Arithmetic Fundamentals	R	39.9	32.3	36.1	55.2	44.4	37.4	42.6	60.7	
	NR	40.6	30.0	36.3	55.2	44.3	32.4	38.1	59.2	6
Rate of Reading	R		205.7				207.4			
	NR		186.9				215.0			
Word Picture	R	25.3				30.3				
	NR	23.7				32.1				
Word Meaning	R	15.3				19.3				
	NR	14.1				19.4				
Total Arithmetic	R		50.6	55.1	93.6		58.1	65.0	102.2	6
	NR		47.1	56.3	93.1		49.9	58.0	96.1	9
Total English	R			39.6				52.4		
	NR			41.6				50.1		
English Mechanics	R				95.4				112.4	
	NR				95.9				113.0	
Biological Science	R				64.0				67.3	
	NR				61.4				63.8	12
Physical Science	R				43.9				42.9	
	NR				44.0				41.1	
Mental Age	R	87.5	147.3	184.1	229.7	88.1	155.0	194.7	240.3	
	NR	86.5	145.2	182.3	223.2	87.6	154.5	188.6	227.2	12
Theoretical Mental Age		72	144	180	216	72	144	180	216	



Numbers at the top of each bar indicate the number of measures on which that group exceeded the group with which it was matched. Numbers at top of graph indicate the total number of achievement measures at each grade level.

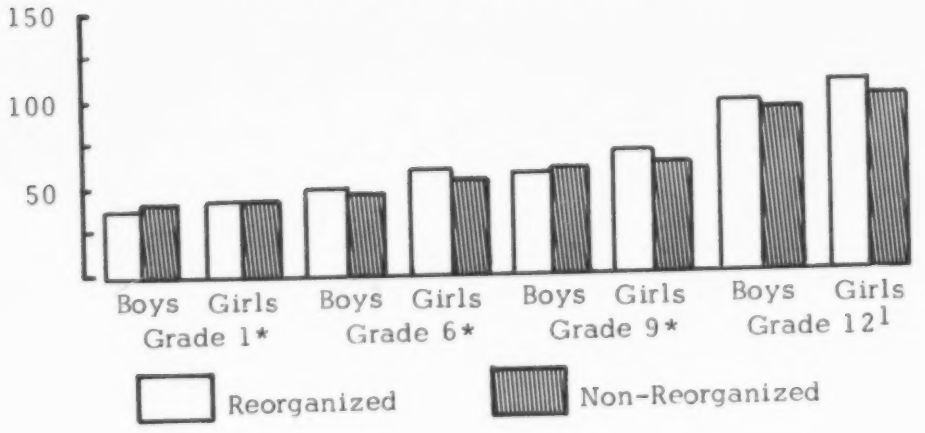
Reorganized Nonreorganized

Fig. 4. Achievement Differences Between Boys and Girls in R and NR Schools in Grades 1, 6, 9, and 12



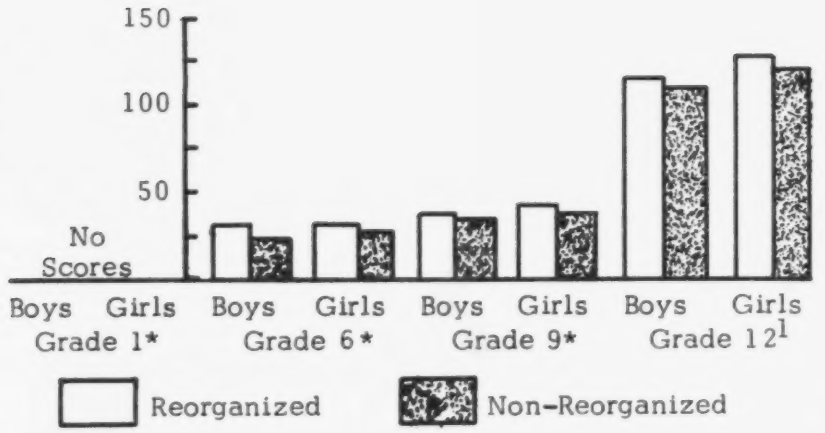
*Metropolitan Achievement [1]California Achievement Test

Fig. 5. Boys' and Girls' Total Reading Scores in R and NR Schools in Grades 1, 6, 9, and 12



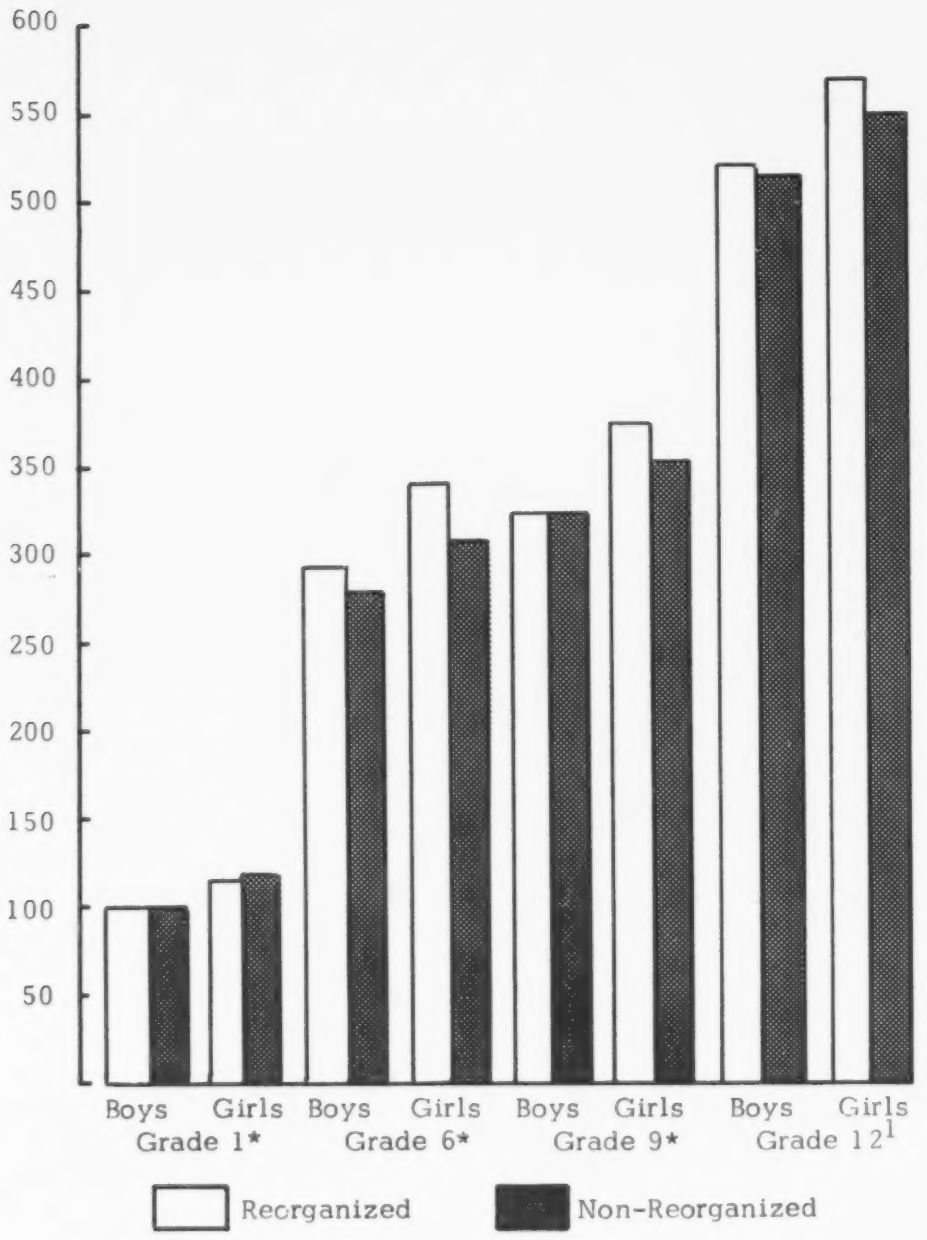
*Metropolitan Achievement [1]California Achievement Test

Fig. 6. Boys' and Girls' Total Arithmetic Scores in R and NR Schools in Grades 1, 6, 9 and 12



* Metropolitan Achievement [1]California Achievement Test

Fig. 7. Boys' and Girls' Total Science Scores in R and NR Schools in Grades 1, 6, 9, and 12



*Metropolitan Achievement [1]California Achievement Test

Fig. 8. Boys' and Girls' Total Achievement Scores in R and NR Schools in Grades 1, 6, 9, and 12

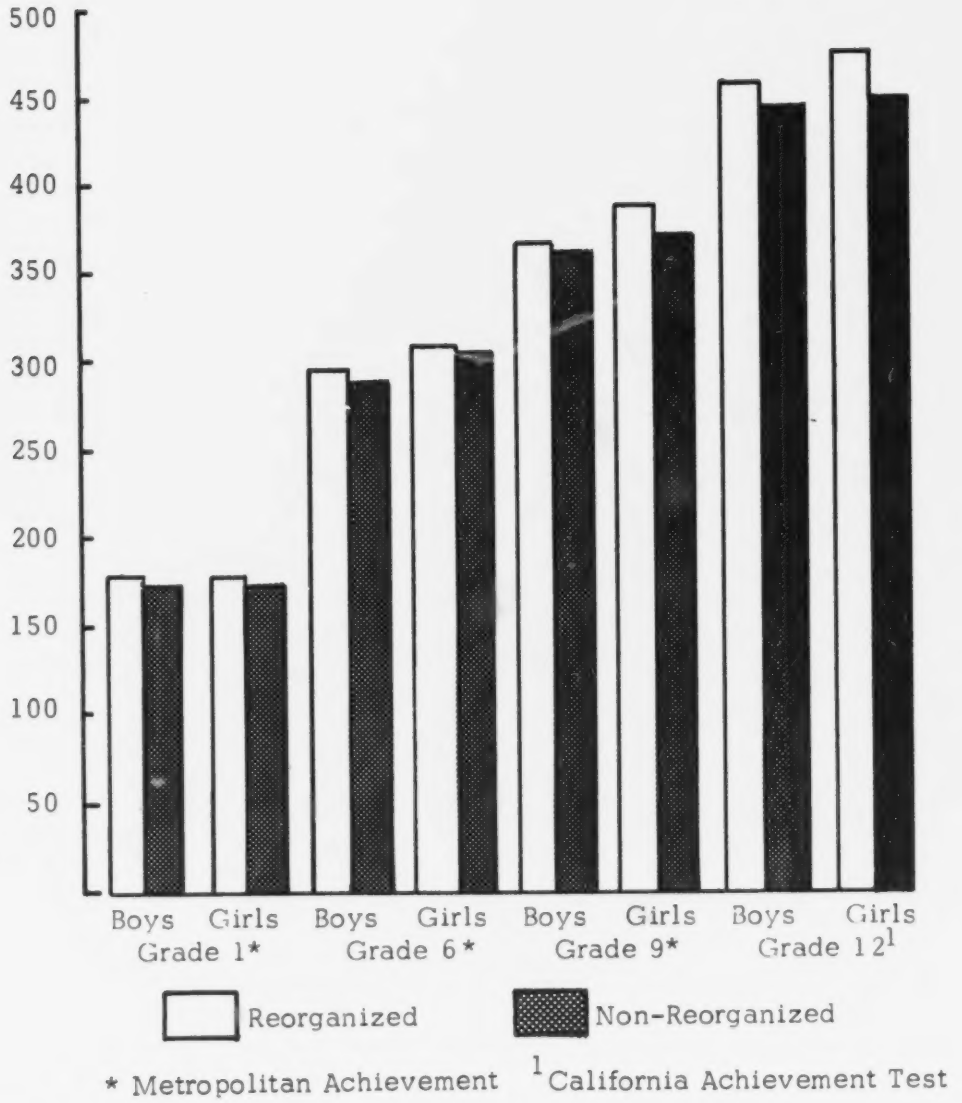


Fig. 9. Months of Mental Ages for the Same Boys and Girls in R and NR Schools in Grades 1, 6, 9, and 12

Here is an opportunity to retest the earlier findings showing pupils in reorganized schools achieving at higher levels at Grade 6 and beyond. Two sets of data were collected from each of the six school communities involved in this part of the study. The original study group enrolled in Grade 1 in the Fall of 1949. A replication study was begun in the same schools in 1954 as is shown in Table 18.

At the Grade 1 level school district reorganization seems to have little or no effect on academic achievement. There are two reasons why this conclusion seems reasonable. The first is that non-reorganized boys and girls were significantly favored over reorganized boys and girls in the experimental sample. The second is that reorganized boys and girls in the original study were significantly favored over reorganized boys and girls in the replication study of the control group. If the results were the reverse for the experimental group, i.e., R favored over NR, then it would be reasonable to say that reorganization was responsible for some of the improvement observed at Grade 1.

The results of the analysis for the Sixth and Ninth Graders do suggest that while reorganization may have a positive effect on academic achievement, overall differences in favor of reorganized over non-reorganized do not seem to be entirely due to reorganization. This conclusion rests mainly on the result of the comparison between two samples of reorganized students in the control group. While significant differences were found in favor of the reorganized sample at the Sixth and Ninth Grade levels in the experimental group, significant differences were also found in favor of the reorganized samples (replication study) of the control group. Differences in achievement test scores from First to Ninth Grade compared between experimental and control NR and R boys and girls in both original and replication studies show the following results:

Table 18

Differences Between Mean Scores on Total Achievement Between Experimental and Control Groups—Grades 1, 6, 9[30]

	Experimental				Control			
	Non-Reorganized 1949		Reorganized 1954		Original 1949		Replication 1954	
Grade	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
1	100.1666	116.0232	82.6660	92.4565	92.2068	113.5862	84.8139	95.3055
6	264.7619	292.3023	320.9199	327.5868	304.8965	336.9654	353.9534	359.6389
9	325.6190	340.4883	360.7000	369.0000	334.1379	370.0689	388.3721	398.0277

Experimental R boys show a mean gain of 52.58 test points over experimental NR boys;

Experimental R girls show a mean gain of 52.09 test points over experimental NR girls;

Control replication boys show a mean gain of 61.52 test points over control original boys; and

Control replication girls show a mean gain of 46.25 test points over control original girls.

While comparable improvement has taken place in schools that were reorganized for only part of the longitudinal study and schools reorganized for the entire study period, students in R schools consistently attained higher achievement test scores. And again, except for the First Grade level, students in the control group showed higher test scores than students in schools in the experimental group. These score results may be interpreted a variety of ways. Obviously reorganization is not the sole factor accounting for improvement in achievement scores. Over a period of time the educational system has appeared to improve in both sets of communities. Besides reorganization, significant differences found in favor of the reorganized sample may not be due entirely to reorganization, per se, but to hidden variables, such as parents' socioeconomic status, level of education, number of children in the family, rate of teacher turn-over, innovations in the curriculum, and a general upturn in the values society places in education.

There were only slight differences in mental age between nearly all samples for which significant differences were found between mean scores on academic achievement. Although an appreciable high correlation was found between mental age and achievement scores, the results of the analysis of covariance, using mental age as covariate, revealed that mental age did not account for the significant differences in achievement.

The final conclusion is that significant differences found between two samples of students may be due only partially to the effect of reorganization. The results of this investigation strongly suggest that significant differences found in favor of a reorganized sample should not be attributed to reorganization alone.

Personal and Social Behavior

The personal and social adjustment of pupils in reorganized and non-reorganized communities is important to measure along with academic achievement scores. The degree to which an individual utilizes his mental capacity depends on how he presents himself. This includes both his concept of self and his relations with others and to his community. Two studies dealing with personal and social adjustment were completed on a sample of boys and girls enrolled in R and NR school districts. The first included students from Grades One through Six (Dowling, 1959). The second study tested the same students when they were in the Ninth Grade (Call, 1963). In addition, the 1966 Kreitlow report included an analysis of Twelfth Grade scores from the original study sample.[31]

Before beginning the first study, the researcher sent out questionnaires to 45 local school administrators and county superintendents

asking how they believed pupils in R and NR school districts differed in degree of personal and social adjustment. Forty-four said that students in R districts were better adjusted. Statements by these school administrators then served as a basis for further investigation. On the basis of characteristics of students identified by the administrators, five parts of the California Test of Personality and teacher ratings of the emotional stability and social qualities of each student were selected to measure differences between the reorganized and the non-reorganized samples. The five parts of the California Test of Personality were:

1. Sense of Personal Worth
2. Feeling of Belonging
3. Social Standards
4. Social Skills
5. Community Relations

Boys at the Sixth and Ninth Grade levels showed significant differences in total test scores in favor of boys from nonreorganized districts. The statements made by school administrators in a survey made in 1954 in which they expressed the belief that the personal and social adjustment of students in R districts is superior to that of students in NR districts do not concur with the personal and social adjustment scores obtained from the students. The measurement of personal and social adjustment by the California Test of Personality indicates that a higher adjustment score is more likely to be found among boys in non-reorganized districts.

The statements of the school administrators are also refuted by the responses made by girls to the questions on the California Test of Personality. Rather than differences in favor of the personal and social adjustment of girls in reorganized districts, it was found that there are no significant differences between the two groups in total scores or in any of the five parts.

There are significant differences in the responses made by boys in the two types of districts to the questions in the Sense of Personal Worth part of the California Test. The differences are in favor of boys in non-reorganized districts who may feel that they are more highly regarded by others, that others have more faith in their success, and that they have more ability than do boys in reorganized districts. This outcome does raise the question of the validity of a non-reorganized student's judgment of himself when we know from data presented earlier that his academic achievement is less than that of his reorganized counterpart.

The significant differences between the means of the scores made by boys in the two types of districts on the Community Relations section may mean that boys in NR districts have greater pride in community improvements and are more inclined to be respectful of laws and regulations pertaining to the general welfare.

The fact that differences between the means of scores achieved on the Feeling of Belonging, Social Standards, and Social Skills sections by boys in the two types of districts are not significant leads to the conclusion that boys in reorganized districts are not superior in these areas of personal and social adjustment as measured by the California Test of Personality. This finding, too, is contrary to the beliefs of school administrators as stated earlier.

Teacher ratings of individual students' emotional stability was correlated with sections of the California Test of Personality. Sixth Grade teacher ratings were found to be more efficient predictors of personal and social behavior of boys and girls in R and NR districts as measured by the California Test than were First Grade teacher ratings. A higher teacher rating of students' emotional stability was more closely related to favorable personal and social adjustment as measured by the California Test for boys and girls in the R districts than in NR.

Analysis of social factors at the Twelfth Grade level included two new items in addition to the five sections used in the California Test of Personality. Socioeconomic status and parents' choice of their child's education was measured between boys and girls and between reorganized and non-reorganized schools. In both cases, the findings were not significant, as shown in Table 19.

On the parts and total scores of the Personal and Social Behavior Inventory, the expected differences between boys and girls on each factor (except the Feeling of Belonging) was present in a statistically significant quantity. The differences noted in Grade 6, showing significant differences favoring boys in non-reorganized districts on Sense of Personal Worth and on the Total Personal Social Behavior score, appeared again in Grade 12.

Factors Affecting Educational Results

Measuring variations in learning opportunities, social adjustment, and educational achievement points up where cleavages exist but does not explain why the differences show up where they do. The task of matching up causes with educational outcomes is only at

Table 19

Differences in Twelfth Grade Socioeconomic and Personal and Social Behavior Scores for Boys and Girls in R and NR School Communities[32]

Factor	N	Mean Score				S = Significant NS = Non-Significant Girls vs. Boys	S = Significant NS = Non-Significant R vs. NR
		Boys (R)	Boys (NR)	Girls (R)	Girls (NR)		
Socioeconomic Status	271	77.858	77.638	79.017	76.803	NS	NS
Parents' Choice of Child's Education	279	3.466	3.232	3.377	3.313	NS	NS
Sense of Personal Worth	279	9.121	9.727	10.410	10.828	Girls (s)	NR (s)
Feeling of Belonging	279	10.207	10.626	10.754	10.891	NS	NS
Social Standards	279	9.931	9.980	10.967	10.859	Girls (s)	NS
Social Skills	279	8,397	8.889	9.902	10.109	Girls (s)	NS
Community Relations	257	8.688	9.426	9.923	9.939	Girls (s)	NS
Total Personal-Social Behavior	279	46.328	49.768	51.902	53.672	Girls (s)	NR (s)

[a]Significant at $p < .01 - .05$

the "hypothesis" stage. Attempts have been made in the latest research to isolate variables. These factors, such as socioeconomic status, were chosen because previous research has indicated them to be critical influences oneducational aspirations. The importance of encouragement from the home cannot be underestimated. Not all factors causing differences in achievement are isolated here; possibly many others exist. What is missing from current research on school reorganization is measurement of the learning climate. Analyzing educational opportunities in the various school communities is only a proxy for the actual setting. Measuring educational achievement in terms of test scores shows the end results but not how and why they occurred.

ACADEMIC AND SOCIAL FACTORS. Further analysis was done for five dependent variables, selected because significant differences between subjects in reorganized and nonreorganized communities were noted at the Twelfth Grade level (Total Reading, Biological Science, Total Personal Social Behavior, Sense of Worth) or differences noted at the Sixth and Ninth Grade levels had suggested such a follow-up (Community Relations). Part of the differences in achievement can be explained by social factors, as the following Table 20 illustrates.

When mental age at Grade 6 and socioeconomic status of the family when the subject was in Grade 6 were controlled, there were no significant differences between Twelfth Grade total reading scores of boys and girls in R and NR districts.[34]

Differences in Biological Science scores were re-analyzed controlling mental age at Grade 6, and Total Arithmetic scores at Grade 12. The result was no significant differences in Biological Science scores.[35]

Identifying significant dependent variables was attempted for social factors. When the influence of socioeconomic status was

Table 20

Differences in Selected Academic and Personal and Social Behavior Factors[33]

Dependent Variables	N	Independent Variables	Mean Score (Dependent Variable)				Girls vs. Boys	R vs. NR
			Boys (R)	Boys (NR)	Girls (R)	Girls (NR)		
Total Reading	168	Mental Age (6) Socio-economic Status (6)	83.600	80.700	93.300	85.000	NS	NS
Biological Science	168	Mental Age (6) Socio-economic Status (12)	64.000	61.400	67.300	63.800	NS	NS
Total Personal Social	168	Socio-economic Status (6)	46.300	49.800	51.900	53.700	Girls Sig.[a]	NR Sig.
Sense of Personal Worth	168	Socio-economic Status (6)	9.100	9.700	10.400	10.800	Girls Sig.	NR Sig.
Community Relations	168	Socio-economic Status (6)	8.700	9.400	9.900	9.900	Girls Sig.	NS

[a]Significant at $p \leq .01 - .05$

removed from Twelfth Grade scores in the Total Personal Social Behavior Inventory, score differences still existed, the girls in the NR communities having the higher scores. This finding is comparable to analysis of Grade 9 data which showed significant differences favoring boys in the non-reorganized communities.

Some differences still existed when the factor of socioeconomic status was removed from Grade 12 scores in Sense of Personal Worth and Community Relations. When scores of boys and girls were compared, the girls had the higher score. However, no significant differences existed between scores of students in reorganized and non-reorganized communities.

INDIVIDUAL AND CLASS TEACHING TIME. One explanation for the achievement differences found in addition to the opportunity and mental age differences noted earlier, is the added opportunity of time spent with a particular class group by a teacher. A study of Winneconne (R) and Denmark (NR) Sixth Graders in 1954 showed Winneconne pupils significantly superior on achievement tests even though pupils in both communities had similar mental ages and the Winneconne students had lower First Grade achievement scores (Eisemann, 1956). Apparently over and above the amount of time spent with individual pupils, the time spent with a class group, especially above the First Grade, is more effective in producing higher achievement. Many Denmark Sixth Graders come from rural schools where one teacher is responsible for several grades. Winneconne pupils were grouped with youngsters of their own age bracket at the Sixth Grade level. One can hypothesize fromtheselimited data that the time spent with the class as a group in a reorganized district is more effective than time spent with individual pupils in a non-reorganized

system with several grades per teacher. Analysis of data collected from the ten study communities at the Ninth Grade level tends to support this hypothesis. Students receiving their elementary schooling in systems providing one or more teachers per class reached a higher achievement level than students in schools where teachers teach multiple grades. There can be no conclusion at this juncture because of all the other "opportunity" variables involved.

MENTAL AGE STATUS. Although differences in measured achievement in favor of boys and girls in R schools are greatest at the Sixth Grade level, the biggest difference in mental age between students in R and NR schools did not show up until the Twelfth Grade level. By that time differences in achievement scores between boys and girls in R and NR communities had leveled off. (See Figure 4, P. 26) This research is not consistent in identifying differences in mental age as the reason for achievement differences.

1. Mental age does not seem to contribute to differences in Twelfth Grade Total Reading scores of the original group.[36]

2. Mental age may be partially responsible for differences in Biological Science test scores of the Twelfth Graders in the original group, although there is some question on how accurately the factor of mental age can be identified with total arithmetic scores.[37]

3. In the study done on three pairs of communities, only slight differences were found in mental age between nearly all samples for which there were significant differences on academic achievement scores (Patten, 1968, p. 181).

Mental age may be a factor impossible to isolate because of its high correlation with academic achievement. Additional research on these variables is needed.

PARTICIPATION IN ADULT EDUCATIONAL ACTIVITIES

In one of the later followup studies of the sample, an attempt was made to link the type of school district reorganization in which respondents had their formal educational experiences with participation in and attitudes toward adult education (Waldron, 1968). The study concerned those respondents who were 5 years beyond high school in 1966. There were three R and three NR schools that were usable by that date.

No statistically significant differences were found between R and NR school districts in terms of participation levels and attitudes toward participation. In both formal and informal adult educational participation, the respondents from R school districts had higher mean scores. In addition, a more positive attitude toward participation in adult educational activities was found for respondents from R school districts.

This consistency, though not statistically significant, gives some support to previous research showing that opportunities provided for the educational development of students were greater in R than in NR school districts. Among obstacles to adult participation found for these samples were the limitation of finance and the self-impression of not being studious.

Table 21 shows the results of linking selected background factors with participation in formal and informal adult educational activities. Participation in adult educational activities on the basis of this study is a reflection of one's mental ability, as measured in high school (Waldron, 1968). Thus, a higher mental ability is related to a higher level of educational participation in the adult years. High school graduation, in itself, does not necessarily lead to participation in educational activities but as the educational level rises following high school, the probability of participation levels also increases. Education, then, perpetuates a desire for more education. Whether a school district is reorganized makes no difference, except in the case of women who had attended reorganized schools. For them, their desire is greater than for those who attended a non-reorganized school.

The three background factors predictive of participation in informal adult activities were:

1. Social standards score for women in R districts.

2. Community relations score for women in R districts.

3. Educational level for women in R districts.

Those background factors predictive of <u>attitudes</u> toward participation in adult educational activities were:

Table 21

Relationship of Selected Background Factors to Participation in Formal and Informal Adult Educational Activities by Respondents from NR and R School Systems

	Non-reorganization		Reorganization	
	Men	Women	Men	Women
1. Participation in Formal Adult Educational Activities				
a. Mental Ability (in Grade 12)		X		
b. Total Achievement Scores (in Grade 12)		X	X	
c. Educational level	X	X	X	
d. Socio economic Status	X	X	X	
2. Participation in Informal Adult Educational Activities				
a. Mental Ability			X	X
b. Achievement		X	X	
c. Voluntary Youth Participation		X		X
d. Total Personal and Social Behavior Inventory Score		Personal Worth		social standards and comm. relations
e. Educational Level		X		X
f. Socioeconomic Status			X	
* predictive relationships				
X - significant TOTAL	1	10	13	10

A significant relationship is based on a one-to-one ratio. For instance, as level of post high school education rises, so does participation in formal adult activities. A predictive relationship is more certain and powerful because it is still significant when other selected variables are held constant.

1. Total achievement scores for men in R districts.

2. Parent participation in voluntary organization for women in NR districts.

3. Total personal and social behavior inventory scores for men in R districts.

The relationships between personal and social behavior characteristics and participation in and attitudes towards participation in adult educational activities did not provide continuity over the two types of participation and the attitudes score. The few relationships that were identified were associated with respondents from the reorganized school districts, with the exception of the sense of personal worth which was found to be related to participation only for women from the non-reorganized school districts. Because of the lack of continuity in relationships for these variables, it was concluded that such personal and social behavior factors as measured in Grade 12 were not generally related to adult educational participation.

MIGRATION AND SOCIAL MOBILITY PATTERNS

Another aspect of school reorganization besides educational opportunities and educational achievement are the patterns of migration and social mobility that occur among rural youth following their completion of formal education at Grade 12. This migration of rural youth into a whole new world of industrialization and urbanization is necessary for them to pursue economic opportunity in present-day America. Migration may be motivated by immediate job or higher education opportunities. Educational preparation has had to be altered to meet changing job opportunities and rural youth have had to accept migration to a different geographic location as necessary to job opportunity.

One aspect of this problem is analyzed in the research done as part of the longitudinal study, that of determining whether or not school district organization influences patterns of migration and social mobility that occur among rural youth following completion of formal education at Grade 12 (Hansen, 1968). This particular study compares patterns of migration and social mobility between youth from six rural R and NR school districts in Wisconsin during the 5-year period following completion of Grade 12.

The type of school organization in the district attended by rural young adults had little, if any, influence on their migration patterns when these youths completed high school. In the case of social mobility, however, the type of school organization did have an effect. In comparing rural young women from the two types of districts about an equal percentage from each group went directly to a job. However, 9% more from reorganized schools went on to college than from non-reorganized and 14% more from the non-reorganized went to vocational and technical schools. An additional 5% from reorganized school districts chose business and commercial training.

In the first year following high school graduation, 45% of the young men from R and NR districts went directly into the labor force to available jobs. Thirty-six per cent proceeded to further education represented mainly by college, technical-vocational, and agriculture short-course training. The majority of the balance entered the armed services.

Men from NR school communities chose immediate employment by a margin of 18% over men from R school communities. In all the categories representing further educational preparation for a vocation, men from R schools chose these categories to a consistently greater degree than did men from NR communities and the latter had a greater percentage of representation in military service in the first year after high school than men from NR school communities. Seven per cent more young farm men from R school communities chose the vocation of farming when compared with farm men from NR communities. Of those in the sample from NR communities, none entered farming as a vocation.

Based on existing research, it does appear that reorganized school districts are contributing toward broader aspirational tendencies among rural young adults through increased learning opportunities and higher academic achievement.*

This conclusion was further supported in the findings on educational aspirations of rural young men and women from R and NR school communities (Maughan, 1968). There was a marked spread in difference of values held and aspiration towards further education by young farm adults from these two school

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*Reinforced by findings of Kreitlow in his report of a study of 10 rural Wisconsin communities, of which six in this study are a part.

systems. Young farm men from NR school communities were 22% higher in their choice of immediate employment as compared with young farm men from R school communities. In comparison, 17% more of the group of young farm men from R school communities entered college for further educational preparation than did young men from NR school communities. This same pattern of difference existed for farm women from R and NR school communities but to a lesser degree.

Even with the above results, the tendency toward a choice of greater educational preparation for a vocation evident in the R school communities could arise from either of two sources—the total community or school organization. Further research is needed before the laudits of school reorganization can be cited as the only, or even the major, factor for producing more realistic values of job preparation.

COMMUNITY STRUCTURES AND PROCESSES

In theory, the enlargement of school districts not only should improve academic opportunity, it should also strengthen the community by increased social and economic contact by adults from farm areas with the village center. The community school is concerned with improving the socioeconomic status of the community. What goes on in the community determines to some extent the quality of educational opportunity the school can provide. Conversely, the school can hope that its efforts will result in improving the quality of community living.

Four different studies were conducted to try and determine the effect school reorganization had on communities, including those village centers where high schools were closed (Chitwood, 1955; Eisemann, 1956; Russell, 1957; MacNeil, 1965. In two of the studies, the degree of utilization of local trade and service institutions by residents of a R school district was compared to the degree of utilization of the same such services by residents of a NR school district. Utilization of the community's trade and service institutions were studied over a period of 5 years; one pair of R and NR communities was used. The differences noted in Table 22 were very slight, not enough to use school reorganization as a city. At least school reorganization did not have an adverse effect on community development as some early opponents of reorganization had suggested.

The latest study encompassed an 11-year period, surveying parents over the full enrolment period of their children from Grades 1 to 12 in school. Surveys were reviewed for all five pairs of communities. Over 11 years, school district organization did increase the amount of adult contact with the village center, but the extent of the increase was slight —not enough to say that school district reorganization significantly increases community socioeconomic solidarity. The overall tendency was toward an increase in the number from reorganized districts who identify with their village center in social and economic contacts with a corresponding decrease for those in the non-reorganized district.

Table 23 shows that the increase in identification with the village center for social and economic contacts is especially marked in the reorganized districts for those services which are used frequently, i.e, banking, church, gasoline, groceries, and feeds. While purchases requiring less frequent contact with the village center also increased in the reorganized districts, i.e., with furniture and clothing, there is an overall tendency for purchases of such stable commodities to be made in larger metropolitan centers. Data did not identify differences in quality and variety of services available in the village centers of reorganized and non-reorganized communities. The decrease in utilization of the village center in non-reorganized communities for such purchases as groceries, feeds, and gasoline is largely attributed to the overall lack of unity prevailing within these communities.

No discernable pattern of change in adult contact with the village center can be generalized by virtue of identical characteristics of paired communities. There are pairs of communities where respondents from each decreased slightly their contact with the village center; where the reorganized increased and the non-reorganized decreased; and where both increased slightly.

Still another study contrasted the service offered in nine Wisconsin school communities whose high schools were closed between 1940 and 1950 with nine other communities of approximate size and location in which the schools remained in operation through 1950 (Chitwood, 1955). Involved in the problem of school reorganization is the effect on communities of closing the schools. Citizens and businessmen feared business activities in contact with the town would be pulled away and taken to the location of the new high school. The researcher used only interviews in his study; upon entering a town he selected by

Table 22

Comparison of the Utilization of Local Village Trade and Service Institutions by Parents of First and Sixth Grade Pupils in R and NR School Districts[38]

	Reorganized - Total Sample 148					Non-reorganized - Total Sample 197				
Service	1st Grade Response	1st Grade Utilization	6th Grade Response	6th Grade Utilization	Per cent Increase or Decrease	1st Grade Response	1st Grade Utilization	6th Grade Response	6th Grade Utilization	Per cent Increase or Decrease
Banking	129	72.87%	136	70.59%	- 2.28	171	55.56%	172	52.91%	- 2.65
Doctor	136	28.68	142	30.28	+ 1.60	187	48.13	184	30.14	-17.99
Newspaper	115	39.13	123	37.40	- 1.73	159	23.27	150	20.00	- 3.27
Movies	118	58.47	104	61.54	+ 3.07	158	62.03	140	62.86	+ .83
Dentist	133	35.34	141	41.84	+ 6.50	185	18.92	179	21.23	+ 2.31
High School	92	85.89	105	89.52	+ 3.65	105	77.14	141	70.21	- 6.93
Church	123	51.22	128	52.34	+ 1.12	163	53.37	176	48.86	- 4.51
Clothing	128	10.94	138	12.32	+ 1.38	177	20.90	178	20.22	- .68
Foods	82	54.88	73	54.79	- .09	119	52.94	108	58.33	+ 5.39
Furniture	100	17.00	106	25.47	+ 8.47	127	12.60	130	7.69	- 4.91
Gasoline	131	58.78	136	59.56	+ .78	180	48.33	185	45.57	- .76
Groceries	140	54.29	142	52.11	- 2.18	189	61.38	187	63.64	+ 2.26
Machinery	71	36.62	68	48.53	+11.91	96	37.50	95	37.89	+ .39

Table 23

Comparison of the Number and % of Adult Respondents Residing in Neighborhoods Outside the Village Center in R and NR School Districts Who Utilized Their Village Center for Selected Services When Their Children Were in Grades 1 and 12[39]

Service	Reorganized				Non-Reorganized			
	1st		12th		1st		12th	
	N.	%	N.	%	N.	%	N.	%
Banking	31	40.26	35	45.45	55	62.50	51	57.95
Doctor	16	20.78	20	25.97	44	50.00	41	46.59
Newspaper	11	14.28	10	12.98	15	17.04	22	25.00
Movies	28	36.36	23	29.87	50	56.81	42	47.72
Dentist	13	16.88	19	24.67	32	36.36	32	36.66
Church	14	18.18	24	31.16	31	35.22	29	32.95
Clothing	4	5.19	7	9.09	11	12.50	7	7.95
Feeds	15	19.48	20	25.97	38	43.18	35	39.77
Furniture	5	6.49	7	9.09	8	9.09	6	6.81
Gasoline	23	29.87	32	41.56	37	42.04	31	35.22
Groceries	17	22.08	29	37.66	51	57.95	54	61.36

observation a business place which appeared to have been a substantial enterprise operating over a period of years. The person first interviewed was usually able to suggest others to interview, besides providing needed data himself. Collecting valid data on this subject is difficult because of other outside factors affecting business volume and services offered. Such factors include change in the values of certain natural resources, new highways being built, closing of certain railroad lines, etc.

The communities which had lost high schools showed no total limitation of services per year over the 10-year period. This occurred in spite of the fact that each community had lost one complete service when the high school ceased operation. Villages which kept high schools showed a gain of services as illustrated in Table 24.

Villages maintaining their schools did show a steady gain in average services offered, while villages in which high schools were no longer operating made a slight gain after the schools were closed as compared with a slight loss suffered in the previous years.

Although many businessmen and for business reasons, objected to the closing of their local high schools, most of them, when interviewed, did not believe their business volume had been damaged. Many now believe the social loss to their community to have been greater than the economic loss.

The fourth study focuses on only one pair of communities, Winneconne (R) and Denmark (NR) and analyzes community interrelations and socioeconomic patterns. Past research substantiates the findings here that strongly homogeneous groups are far more resistant to change and improvement than are heterogeneous areas. The parents of the Denmark First and Sixth Grade pupils showed greater homogeneity in respect to (1) nationality backgrounds, (2) religious affiliation, (3) neighborhood identification, and (4) occupations. In addition they had a smaller number of inter-faith marriages. These strongly homogeneous characteristics in the Denmark area have expressed themselves in several ways. Denmark parents belong to fewer community-wide organizations, have lower educational attainment, desire less education for their children, and identify themselves strongly with their small rural schools

Table 24

Average Number of Services Offered Per Village for Two Groups of Villages[40]

		General Trade	Service Trade	Profes-sional	Religious	Public Education	Recre-ational	Social-Fraternal	Totals
1930	Group I*	16.77	12.22	1.55	2.44	1.88	2.00	3.44	40.3
	Group II**	14.67	9.55	1.67	2.89	2.00	2.78	3.89	37.4
1940	Group I	18.77	11.11	1.22	2.44	1.88	1.66	3.22	40.3
	Group II	16.78	9.78	1.55	2.78	2.00	2.33	4.11	39.3
Last year high school operated									
1950	Group I	19.88	11.11	1.00	2.44	1.00	1.77	3.22	40.4
	Group II	18.77	11.55	1.00	2.88	2.00	2.55	4.11	42.86

*Includes nine villages in which high schools are no longer operating.
**Includes nine villages in which high school are still in operation.

or parochial schools. The opposite of this is true in the Winneconne area. The changes in both communities over the past 5 years indicate that both communities are becoming increasingly heterogeneous in character

Another conclusion of this two-community study was that strong identification with community and village trade and service facilities does not necessarily accompany a reorganized and accepted community school district. The Denmark community area had a greater utilization of community service than existed in the Winneconne community. Denmark parents support community merchants and institutions to a greater degree. However, up to 1955 the Denmark community had shown little or no interest in forming a reorganized school district.

EXPENDITURES

One of the arguments for reorganizing several smaller districts into one large district is that the tax levy will be less. Reasons given for this lightened tax load are: larger base of assessed evaluation, increased state aids, increased efficiency of operation, volume buying, etc. Some of these reasons may be valid. However, when districts combine, the actual tax levy will decrease for residents in only part of the dissolved districts. On the other hand, opponents of reorganization say it will cost more and will actually increase everyone's taxes. They point to the need for new buildings and additional buses as reasons which most nearly represents the reorganized situation.

This question and the disparate arguments connected with it prompted the incorporation of a study of expenditures into the longitudinal research.[41]

A study of the differences between the five R and five NR communities failed to show any significant difference to exist between instructional expenditure and academic achievement. In fact, it was found that for each point of the mean total achievement raw score, 49 cents was spent on teachers' salaries, books, supplies, etc. (instructional expenditure). This amount of instructional expenditure per point of mean achievement was precisely the same for reorganized schools as it was for the non-reorganized. Along with this finding, it was revealed that the reorganized schools spent $12.23 more for instruction per pupil than did the non-reorganized communities, and thus received a proportionate increase in achievement. Only in the case of one pair of schools did the non-reorganized (control) spend more on instruction than did the reorganized school.

Analysis of relationships existing between academic achievement and mean operational expenditures over a 5-year period in a special group of 36 reorganized districts failed to show any differences significantly different from zero when analyzed in terms of high-, medium-, and low-cost schools with student

intelligence controlled. All of the schools analyzed in this special part of the study were reorganized.

In this related cross-sectional study by Bragg, no differences were found in achievement among reorganized districts with high, medium, and low expenditure for operation. No major differences appeared in instructional expenditure between R and NR communities. The only minor increase in instructional expenditure in reorganized communities occurs in direct proportion to the increase in academic achievement. When total expenditure for operation is considered, there are no related achievement differences (Bragg, 1960).

IV
OUTCOMES OF 4-H CLUB WORK

BACKGROUND AND DESIGN OF THE 4-H CLUB STUDY

Improving learning opportunities in rural Wisconsin would be incomplete without a current examination of the effectiveness of the largest youth movement in Wisconsin and the world—4-H Clubs. In 1967 65,025 Wisconsin youth participated in 4-H, among whom an increasing number are from urban and rural nonfarm areas. Approximately 40% of the rural farm 10-14 year old youth belong to 4-H in a given year; 4-H membership has increased 47.7% during the last 12 years and has more than doubled during the last 22 years.

Constant development of goals and activities to maintain relevance to the needs of its youthful membership is no easy task in such a gigantic organization. Unfortunately, the size and scope of an organization such as 4-H is no measure of its effectiveness. About 18% of those eligible in Wisconsin are enroled in any 1 year.[42] Compounding the difficulty is the fact that leaders on the local level are volunteer, non-professionals. In the end, the volunteer club leader must translate national objectives to the local situation. Grasping the local situation, let alone adjusting the 4-H Club program, is a super challenge when over one-fourth of the adult club leaders are new each year. By the second year 67% of these leaders will have to be replaced. (See 1967 Wisconsin statistics in Table 26.) Luckily, the county youth development agents have a longer tenure: 78% have held their jobs 6 years or more. The 4-H Club program, initially formed for rural youth, was designed to capitalize in the unique cultural milieu of the farm setting. Project activities were developed with standard organizational requirements around which the program was built. Since then, the objectives of the 4-H Club organization have broadened to include the following:

Explore Careers and Improve Employability

Acquire Knowledge of Science and Scientific Methods

Learn Agricultural Production and Management Principles

Value and Conserve Natural Resources

Engage in Community Development

Improve Family and Home Living

Create Desirable Relationships with Others

Promote Safety, Health, and Fitness

Appreciate Cultural Arts and Use Leisure Creatively

Increase Leadership Competence

Become Responsible Citizens

Share in International Development and Understanding

And in Wisconsin the emphasis is gradually shifting from judging the success of the 4-H Club program by the quality of the project to measuring program effectiveness by the development of the youth involved.

The objectives of the Expanded 4-H Approach from the extension workers' and youth leaders' viewpoints are:

1. To provide a better public understanding on:

   —availability and benefits of 4-H to all young people regardless of residence.

Table 25

Wisconsin 4-H Enrolment: Facts and Trends[43]

	Membership Enrolment						
	1945	1955	1963	1964	1965	1966	1967
Boys and Girls	30,672	44,055	56,998	62,450	61,993	59,886	65,025
Adult Leaders			14,596	15,839	16,201	16,530	
Junior Leaders			6,493	7,416	7,492	7,300	
Total Clubs			2,229	2,260	2,249	2,174	
	Enrolment by Residence						
Farm	88.9%	79.4%				56.0%	51.9%
Rural, non-farm	7.9%	15.8%				21.0%	32.0%
Urban	3.2%	4.8%				23.2%	16.1%

Re-enrolment Percentage Varies Around 68%

Members are Enrolled Average of 2.85-3 Years

Median Age of 4-H Members is 12.4 Years

Table 26

Tenure of 4-H Adult Leaders
(1967 Statistics)[44]

1 year	4,084
2 years	2,723
3 years	2,044
4 years	1,652
5 years	1,205
Over 5 years	5,133
	16,846

—importance of 4-H as a worthy program for older youth as well as for the younger members.

2. To provide project and activity experiences according to developmental needs for each of the several age levels with special emphasis on:

—explorer project for 9-year-olds.

—traditional project for 10- to 13-year olds.

—group projects for the 14- to 18-year olds.

—knowledge and attitudes in addition to skills for older youth.

3. To provide a better understanding of the total development of the individual with an emphasis on education growth.

4. To select and train adults for two club groups:

—leaders for the younger members—9- to 13-year olds.

—advisers for the older members—14- to 18-year olds.

5. To make a greater effort in:

—reaching those who presently do not belong to youth groups and those who could benefit from such experiences.

—providing satisfying experiences which will encourage greater and

longer participation in the educational program.

As the membership by residence gradually changes from farm to more urban and non-farm, both volunteer and professional 4-H leaders are presented with a challenge to shift club areas of emphasis. As a result, many questions have been raised concerning 4-H Club effectiveness. Are 4-H Clubs meeting their goals? Does Club work make a difference in personal and social development and academic achievement in school? Are there definite differences between members and non-members? Are the Clubs attracting those who can most benefit from membership? Why do many youngsters drop out of Club work after 1, 2, and 3 years? At what age do most members join? Of what value are the 4-H Club projects?

An opportunity to answer perplexing questions raised by both volunteer and professional 4-H Club leaders arose when most of the needed data were being gathered for the study of school district re-organization in Wisconsin. Only a small amount of additional data in 4-H Club activities needed to be added. Of great importance to the design and thus to the validity of the tests would be the fact that the basic data on intelligence and achievement (all of the teachers' ratings and information gathered from parents of the sample) were obtained without identifying the youngsters as being in 4-H Clubs or not being 4-H Club members.

For the proposed 4-H study to be generalizable to other rural areas, it was essential to determine whether or not the 4-H membership and program in the selected school communities were similar to the membership pattern and program in other rural areas of Wisconsin. Summary data from the annual reports available in the State 4-H Clubs' office, University of Wisconsin, showed that the counties from which the ten school communities came were very typical of the state as a whole. Likewise, no large differences were found on such factors as number of members, average tenure of members, types of projects carried, and ratio of local leaders to members.

Findings from a 1965 study (Bholay, 1965) indicate that teacher ratings of boys and girls in 1st, 6th, and 12th Grades are not consistent. Without any exceptions boys and girls were rated highest during 6th Grade followed by 1st and 12th Grade teacher rating in the high to low order. Therefore, conclusions made from data collected by teacher ratings can indeed be questioned. Teachers and administrators were also unaware of the breakdown of the data into 4-H Club member and non-member categories.

SELECTED ASPECTS OF THE 4-H CLUB STUDY

Who Joins?

Research measuring the effectiveness of the Wisconsin 4-H Club program was divided into several areas. First, 4-H Club members and non-members were compared on variables such as family background, personal and social behavior, mental ability, and those characteristics thought to be developed by 4-H Club participation (Barnes, 1964; Lidster, 1963, Middleton, 1958; Pierce, 1958; Singh, 1959; & Prasad, 1961).

When Do Members Join?

Family background and status is important in the enrolment and re-enrolment of boys and girls in 4-H Club work. Research was done to discover the relationship of certain family background characteristics to the age at which a member joins 4-H Clubs and his persistence in the program (Brack, 1961). Directly related to the age of joining 4-H Clubs is the tenure of club membership. Maintaining continuous club membership over a period of years is one of the hardest challenges 4-H Clubs have to meet. The percentage of club members re-enrolling in 4-H Club work in 1958 was 68%. This figure has remained about the same for the last 10 years.[45] The average length of Club membership in the United States is 2.7 years and this has remained constant since 1951. Of those in club work, 34% were first-year members, 23% were second-year members, 27% were members for three or four years, and 16% were members for five or more years.[46] Research was carried out to try to determine whether differences existed between those who were 1-2 year members and 4-5 year members and those who had never been members (Suhaina, 1961; Brack, 1961).

Analysis of 4-H Club projects is yet another measure of 4-H Club effectiveness. One of the project studies explored the relationship

existing between certain educational and socio-economic factors and the kinds, numbers, and degrees of progression of the Wisconsin 4-H Clubs used in the study.[47]

The last section evaluates 4-H Club programs by direct questionnaire responses from 4-H members and 4-H Club dropouts.[48]

COMPARISON OF 4-H CLUB MEMBERS AND NON-MEMBERS

Family Background

The first comparison made between 4-H club members and non-members is on family background. Data were collected by parent questionnaires on boys and girls in the Sixth Grade in 10 Wisconsin communities to learn which youth become members and whether a certain family type is associated with 4-H club membership (Middleton, 1958; Singh, 1959; & Lidster, 1964).

SOCIOECONOMIC SCORE. The socioeconomic scale scores were checked three different ways at the Sixth Grade level. First, parent scores were compared when the children were in the First Grade and later when the same children were in the Sixth Grade. A separate study with a slightly enlarged sample made up the third comparison. The results appear in Tables 27 and 28.

The finding that 4-H Club boys and, to some extent, 4-H girls come from families having higher socioeconomic status than that of non-4-H boys and girls is in accord with several previous findings and is a cause for concern. One of the studies determined that the ratio of 4-H and non-4-H members is 1 to 2.6; that is, 4-H members represented 27% of the total sample. This means that a very large number of potential 4-H members are not being reached by 4-H Club programs. It may be argued that the 4-H Club is a voluntary organization and all potential members are not expected to join. Yet, those who join are not only small in number but are also a selective group coming from

Table 27

Mean Scores of 6th Grade 4-H and Non-4-H Boys and Girls on the Socioeconomic Status Score When the Same Boys and Girls were in Grade 1[49] and Grade 6[50]

	4-H Members		Non-4-H Members			
Grade 1	Mean	Number	Mean	Number	"d"	Higher Mean Score
Boys	72.1	68	69.6	155	1.0	4-H n.s.
Girls	75.3	69	71.9	139	1.4	4-H n.s.
Grade 2						
Boys	76.8	90	72.3	232	3.6	4-H sig.
Girls	76.2	91	74.2	176	1.6	4-H n.s.

Table 28

Mean Scores on the Socioeconomic Status of the Family when 4-H and Non-4-H Boys and Girls were in Grade 6 from 10 Communities[51]

	4-H Members		Non-4-H Members			
	Mean	Number	Mean	Number	"d"	Higher Mean Score
Boys	77.2	70	72.8	225	3.29	4-H sig.
Girls	75.3	78	74.2	174	0.79	4-H n.s.

families with a higher socioeconomic status. Since the 4-H Club program purports to be for all economic groups, it is essential that the importance of the socioeconomic differences of the children are fully understood by local leaders as well as administrators.

A child of low socioeconomic status may be seriously handicapped in many other ways, too. Contests and recognition, for example, are important aspects of 4-H Club work. But those boys and girls who are economically and socially at a low level may feel that there is no chance for them in such contests and they may not gain recognition in contrast to those at higher socioeconomic level.

In the last two studies, socioeconomic scores of 4-H boys' families were significantly higher than non-4-H boys. Although not statistically significant, 4-H girls had consistently higher socioeconomic mean scores than non-4-H girls.

Mean scores on other Home and Family background items are compared in Table 29. To summarize background characteristics, families of 4-H Club members tend:

—to have a higher status or prestige in the community than do non-4-H boys and girls

—to have more favorable background than do non-4-H boys and girls as seen by a person outside the family, their Sixth Grade teacher

—to have higher moral and ethical standards than non-4-H families as related by the Sixth Grade teacher

—to be farm-owners rather than from any other tenure status

—to be more active and interested in community organizations and affairs than parents of non-members.

In addition:

—Girls who join 4-H Clubs tend to have more opportunities than girls who do not join 4-H Clubs.

—Boys and girls from families with present or past ties with 4-H Club work are more likely to join than those with no previous connection. These connections can be through brothers or sisters in 4-H Clubs or boys and girls with parents as leaders of 4-H Clubs. Boys and girls with parents interested in their being 4-H members are more likely to join.

—The families of 4-H boys work with the church more than do non-member families. This difference is not significant between girl 4-H members' and non-members' families.

—The church affiliation of the parents does seem to have some relationship to 4-H membership of boys and girls but the extent is not established in this study. One broad generalization may be made, however; boys and girls of Lutheran parents are more likely to join 4-H Clubs than are boys and girls of Catholic parents.

—A larger percentage of boys and girls with farm backgrounds join 4-H than boys and girls with non-farm backgrounds.

—Membership of boys and girls was related to the size of farm and number of dairy cows. Boys and girls from larger farms with larger dairy herds joined 4-H Clubs in relatively greater numbers than those from smaller farms and fewer dairy cows. The difference was significant for boys and in the region of doubt for girls.

—The size of the family was not a selective factor in 4-H club work.

There are socioeconomic barriers which limit the membership of boys in 4-H club work and to a lesser extent, girls' membership. Also boys and girls from smaller farms or with less home advantages than their local neighbors will not join 4-H Clubs in as great numbers as their neighbors. This may be because the families of lower socioeconomic standing feel they cannot afford even the moderate financial outlay necessary for some of the boys' projects. It is recognized that some of the boys' live animal projects do take considerable money and facilities. There are projects that take only a moderate amount of money for participation, which may not be known to the families. Or this may be due to differences which tend to place boys and girls of lower socioeconomic status or from smaller farms in an economic class different than their neighbors to whom they feel inferior.

Personal and Social Behavior

Three separate studies were completed on measuring differences in Personal and Social behavior between 4-H Club members and non-members. Two were done on the 9th Grade

Table 29

Summary of Mean Scores of the 15 Factors Related to Family Background of 6th Grade 4-H and Non-4-H Boys and Girls in Ten Selected Wisconsin Communities[52]

Table	Boys						Girls						Boys and Girls					
	4-H		Non-4-H		"d"	Higher Mean Score	4-H		Non-4-H		"d"	Higher Mean Score	4-H		Non-4-H		"d"	Higher Mean Score
	Mean	N	Mean	N			Mean	N	Mean	N			Mean	N	Mean	N		
Socioeconomic Status of Family	76.8	90	72.3	232	3.6*	4-H	76.2	91	74.2	176	1.6	4-H	76.5	181	73.1	408	3.8*	4-H
Family Financial Status as Rated by the Teacher***	3.0	92	3.1	209	0.5	4-H	3.0	91	2.9	172	1.0	Non	3.0	183	3.0	381	0.4	4-H
Family Status or Prestige in the Community as Rated by the Teacher	2.9	92	3.0	209	1.8	4-H	2.8	91	2.9	172	1.2	4-H	2.8	183	2.9	381	2.2**	4-H
Family Background as Rated by the Teacher	2.9	91	3.0	192	1.4	4-H	2.8	89	2.9	160	1.7	4-H	2.8	180	3.0	352	2.2**	4-H
Child's Home Opportunities as Rated by the Teacher	2.9	95	2.9	214	0.3	4-H	2.6	95	2.8	172	2.2**	Non	2.8	190	2.9	386	1.8	4-H
Number of Children in the Family	4.5	91	4.1	232	1.6	4-H	4.3	93	4.3	173	0.2	4-H	4.4	184	4.2	405	1.1	4-H
Family Education Status as Rated by the Teacher	3.0	90	3.0	203	0.2	4-H	2.9	88	2.9	166	0.6	4-H	2.9	178	3.0	369	0.7	4-H
Special Skills of Child's Family as Rated by the Teacher	3.0	86	3.0	204	0.3	4-H	2.9	83	3.0	169	0.7	4-H	3.0	169	3.0	373	0.7	4-H
Moral and Ethical Standards of Family as Rated by the Teacher	2.7	89	2.8	208	1.0	4-H	2.6	90	2.8	170	1.8	4-H	2.7	179	2.8	378	2.1**	4-H
Organizations to which Parents Belong	3.3	78	2.9	199	3.1*	4-H	3.2	86	2.7	154	1.2	4-H	3.2	164	2.5	353	3.2*	4-H
Family Social Status as Rated by the Teacher	2.9	90	3.0	208	2.1**	4-H	2.8	91	3.0	172	1.2	4-H	2.9	181	3.0	380	2.4**	4-H
Work with Church as Rated by the Teacher	2.9	87	3.2	201	1.1*	4-H	2.9	86	2.9	164	0.1	4-H	2.9	173	3.1	365	2.2**	4-H
Work Ability of the Father as Rated by the Teacher	2.8	91	2.9	209	1.6	4-H	2.8	91	2.9	170	1.0	4-H	2.8	182	2.9	379	1.1	4-H
Size of Farm	3.5	79	2.7	154	2.4*	4-H	3.2	76	2.5	106	1.9**	4-H	3.4	155	2.7	260	3.1*	4-H
Number of Dairy Cows	4.6	79	3.9	154	2.7*	4-H	4.1	76	3.3	106	1.8	4-H	4.3	155	3.3	256	3.2*	4-H

* = Significant at the .01 level
** = Significance in the region of doubt (between .01 and .05 level)
*** = All items rated by the teacher are on a scale from 1 to 5 with the 1 being the highest rating as per 1 = one of the highest.

level (Prasad, 1961; Subaima, 1961); the third incorporated California Test of Personality results from the 6th, 9th, and 12th Grade levels (Barnes, 1964). In all three studies the results are similar; no significant difference exists between 4-H and non-4-H boys and girls in their personal and social behavior as measured by the California Test of Personality.

The first study, done on 9th Grade girls who were 4-H members over 4 years, drop-outs after 1 to 2 years, and non-members, found no significant differences among the three groups in the Sense of Personal Worth, Feeling of Belonging, Social Skills, and Total Personal and Social Behavior Scores. Actual mean scores, however, were in favor of 4-year 4-H members as Table 30 shows.

Ninth Grade 4-H and non-4-H boys and girls were examined in the second study. Two significant differences were identified between the two groups in their Personal and Social Behavior. Mean scores on the five subtests are summarized in Table 31.

Especially noteworthy is that the difference in mean scores between 4-H and non-4-H girls, though minor, are consistently in favor of 4-H'ers except in one case, Social Skills. The situation is reverse in the case of boys. The non-4-H boys have higher mean scores in all cases except in one instance, Feeling of Belonging, where there is no difference between 4-H and non-4-H groups. The differences hold true for both groups of boys. These results indicate 4-H girls as compared to 4-H boys are relatively superior in regards to their personal and social growth. This conclusion is based on the consistency of mean score differences rather than significant score differentials.

Table 30
Summary of Social Behavior

Summary of the Analyzed Data of the Eleven Variables of Social Behavior of the 4 Year 4-H Girls, 1- & 2-Year Drop-outs of 4-H Club Work, and and Non-4-H Girls of the Ninth Grade of the Ten Selected Communities of Wisconsin[53]

Variables in Social Behavior	4 Year 4-H Girls		1- & 2-Year 4-H Drop-outs		Non 4-H Girls		F
	X	o	X	o	X	o	
Out-Door Team Sports	7.22	2.47	7.43	1.44	7.00	2.00	3.656*
Group Activity Interest	9.52	1.31	8.87	2.36	9.40	1.88	0.392
Sense of Personal Worth	10.70	1.16	10.39	1.40	10.52	1.72	0.248
Feeling of Belonging	11.35	0.76	10.91	1.71	10.74	1.67	1.027
Social Skills	10.09	1.14	9.48	1.66	10.13	1.60	1.325
Total P. & S. Score	53.96	3.30	51.57	3.52	49.74	11.30	0.124
Family Background T	2.70	0.55	2.87	0.45	3.13	0.46	4.583*
Social Qualities T	2.57	0.71	2.61	0.64	2.91	0.65	1.766
Willingness to Work T	2.09	0.83	2.22	0.72	2.52	0.58	2.212
Home Opportunities T	2.65	0.63	2.61	0.49	2.91	0.58	1.824
Emotional Stability T	2.70	0.76	2.74	0.53	2.87	0.45	0.778

T - According to Teacher Rating the Smallest Figure Has the Highest Value in the Mean Scores

* - Significant Between .01 and .05 Levels

N = 23 in each of the three groups.

Table 31
Summary of Findings

Summary of the Results on the Five Hypotheses of Personal and Social Behavior at the 9th Grade Level[54]

Sex Groups	Variables With Higher Mean Scores in 4-H'ers Favor	Variables With Higher Mean Scores in Non-4-H'ers Favor	Variables With No Mean Difference Between 4-H and Non-4-H
Girls	1. Sense of Personal Worth	1. Social Skills*	---
	2. Feeling of Belonging*	---	---
	3. Social Standards	---	---
	4. Community Relations	---	---
Boys (both groups)	---	1. Sense of Personal Worth	1. Feeling of Belonging
	---	2. Social Standards	---
	---	3. Social Skills	---
	---	4. Community Relations	---

* Significant
If no asterisk, the results show direction, but are not significant.

A sample of 165 Twelfth Grade boys and girls from five of the ten schools involved in the longitudinal study was used in the third study. The sample was divided into three groups according to their 4-H Club experience: 4-H members, 4-H dropouts, and non-4-H boys and girls. Data were collected at Grades 6, 9, and 12. No differences were found among the means of scores on sub-tests and total scores of the California Test of Personality achieved by the three groups of the sample at the three grade levels when intelligence and socioeconomic level were controlled.

Even though no significant differences existed among the means of the three membership groups, a tabular presentation of the mean raw scores for each grade level was made in order to further study any consistant differences among the matched membership groups. From this it was found that 4-H drop-out girls had the lowest mean total raw score on the California Test of Personality at Sixth Grade while the 4-H group had the lowest mean total raw score of the three membership groups at Ninth and Twelfth Grades. At the same time, the non-4-H girls showed the highest mean total raw scores of the three groups at Sixth and Twelfth Grades and the 4-H drop-outs had the highest total raw score at Ninth Grade.

Despite the erratic pattern found to exist among the differences in mean scores of the sub-tests over the three membership groups through Grades 6, 9, and 12, all three membership groups of girls showed an increase in mean total raw score on the California Test of Personality from Sixth through Twelfth Grade. The 4-H dropouts had an increase of 3.7 points, the 4-H girls showed an increase of 3.3 points, and the non-4-H girls' mean total raw score increased 3.0 points.

The differences existing among the membership groups of boys showed that the 4-H boys had the highest mean total raw score on the California Test of Personality at Grade 6 but at Grades 9 and 12 the mean total scores of the 4-H drop-out boys were highest of all three groups. The lowest mean total raw scores on this test were scored by the non-4-H boys at each of the three grade levels.

Even though the pattern of high and low mean raw scores on the California Test of Personality showed by the boys from Sixth through

Twelfth Grade was somewhat more consistent than that developed by the girls, it must be pointed out that the 4-H boys showed a decrease in mean total raw score on the test over this period. The 4-H boys' mean total score was 2.9 points lower at Ninth to Twelfth Grade; the Twelfth Grade mean total score was still 2.1 points lower than it was at Sixth Grade. The non-4-H boys showed the lowest mean total raw score of the three groups at each grade level; however, their total raw score showed an increase of 4.3 points from Sixth through Twelfth Grade. The 4-H drop-out boys' mean total raw score increased 2.1 points during the same period.

The fact that significant differences were found to exist between the three membership groups on the Feeling of Belonging sub-test with the 4-H drop-out group scoring the highest, suggests that the 4-H Club program may aid in giving the member a sense of security during his earlier years in the program. However, the program seems to be less effective in helping older youngsters develop a sense of security and may even act as a deterrent.

When 4-H members are compared in the area of personal and social adjustment with non-4-H boys and girls, who have a similar level of intelligence and come from similar family backgrounds, the 4-H members really are no more mature than the non-4-H youngsters. It also indicates that, at least in the communities studied, the 4-H Club program is not meeting its stated objectives concerning personal and social development of the individual among the older members.

Emotional Stability

Emotional stability was compared between 4-H members and non-members at the Sixth and Ninth Grades in three separate studies (Singh, 1959; Prasad, 1961; and Subaima, 1961). All the data were collected by teacher questionnaires. A well-adjusted child is expected to be stable emotionally. It was therefore thought that differences in the mean scores on the emotional stability between 4-H and non-4-H boys and girls would be a good supplementary indication of the comparative personal and social adjustment of the two groups. Table 32 presents the mean scores on emotional stability of 4-H and non-4-H boys and girls as rated by their teachers.

From this particular sample, 4-H boys are shown to be more stable emotionally than non-4-H boys. There is no statistical difference between 4-H and non-4-H girls. No variables were controlled in this first study.

At the Ninth Grade level, matched groups of boys and girls were compared on emotional stability (see Table 33).

In Groups (a) and (c), the variables of IQ, socioeconomic status, school achievement, and organizational affiliation are controlled. In Group (b) only socio-economic status, school achievement, and organizational affiliation are controlled. There were no significant differences between 4-H and non-4-H members in all three of the groups.

A third study done on Ninth Grade girls who were 4-H members 4 years and over, 4-H drop-outs after 1 and 2 years, and non-4-H members found no significant difference between the three groups (Subaima, 1961, p. 84).

Home Opportunities

At the Sixth Grade level teachers rated boys and girls in the 10 communities on opportunities available for an enriched home

Table 32
Emotional Stability

The mean scores on the emotional stability of the Sixth Grade 4-H and non-4-H boys and girls in ten selected Wisconsin communities.[55]

Group	4-H Members		Non-4-H Members		"d"	Higher Mean Scores
	Mean	Number	Mean	Number		
Boys	3.2	70	2.9	225	2.87	4-H*
Girls	3.3	78	3.2	174	1.06	4-H

* Significant at .01 level

Table 33

The Mean Scores on Emotional Stability of Ninth Grade 4-H and Non-4-H Matched Boys and Girls in Ten Selected Wisconsin Rural Communities[56]

Groups	4-H Members		Non-4-H Members		Higher Mean Score
	Number	Mean	Number	Mean	
a) Girls	19	3.2	19	3.2	---
b) Boys	18	3.1	18	3.0	4-H
c) Boys	9	3.0	9	3.0	---

life. Girls who were 4-H club members had significantly greater opportunities. The scores of boys showed no significant differences for the total sample (Middleton, 1958, p. 38). Home opportunities of Ninth Grade Girls were rated by teachers in all the 10 of the Wisconsin communities. The mean scores among 4-H girls of 4 years and over, 4-H drop-outs after 1 and 2 years, and non-4-H girls show little difference, non significant (Subaima, 1961, p. 84).

Willingness to Work

Again statistics for this segment of the study done on Ninth Grade girls was obtained by teacher ratings. No significant differences resulted between 4-H girls of 4 years and over, 4-H drop-outs after 1 and 2 years, and non-4-H girls. The 4-H group had the highest mean score.

Social Qualities

Three studies tested whether teacher ratings of social qualities differed among 4-H members, 4-H drop-outs, and non-4-H members (Middleton, 1958; Prasad, 1961; & Singh, 1959). At the Sixth and Ninth Grades, little differences existed. Only at the Sixth Grade level could meaningful differences be observed and in the case of 4-H and non-4-H girls, these were within the region of doubt. 4-H boys had significantly higher ratings on social qualities.

Interest Patterns

Four comparisons were made between 4-H members, 4-H drop-outs, and non-4-H members at several different grade levels to test whether interest patterns vary among the three groups. The information on the nine areas of interest was collected in all the studies by the Interest Inventory. [This test was revised by Burton Kreitlow from an earlier instrument developed by Chester W. Harris, with the advice and counsel of a project research advisory committee, all from the University of Wisconsin, Madison, Wisconsin.] Interest areas identified by the Interest Inventory are:

Outdoor Team Sports
Solitary Sports
Agricultural
Reading
Solitary Activity
Juvenile Activity
Music
Art
Group Activity

Interest patterns of the Sixth Grade 4-H and non-4-H boys and girls were analyzed in the first of the four studies (Singh, 1959). Results show that 4-H boys are significantly more interested in agriculture than non-4-H boys. This may be related to club.work, but indications are that it is due to a selectivity factor. Those boys initially interested in agriculture joined; those who are not interested, didn't join. Non-4-H boys showed significantly greater interest in art and reading. There were no significant differences between the two groups of boys in the other interest areas.

Another finding of this particular study is the significantly high interest of non-4-H girls in juvenile actions. The difference in favor of non-4-H girls reveals choices of certain activities like playing with toys, and other children's

activities. It represents an immaturity on the part of girls who did not choose to join 4-H.

There were no significant differences between the two groups of girls in the other interest areas.

The second study on Ninth Grade 4-H and non-4-H youth found no significant differences between the groups when socioeconomic status, I.Q., school achievement, and organizational affiliation was controlled (Prasad, 1961). However, contrary to the previous study, Ninth Grade non-4-H boys and girls had higher mean scores on agricultural interests in addition to reading, solitary activity, and juvenile action interests.

The last two studies cover Sixth, Ninth, and Twelfth Grades (Barnes, 1964, p. 113).[57] The first study tested whether interest patterns vary among 4-H club members, dropouts, and non-members when intelligence and the socioeconomic level are controlled. Previous research already showed 4-H members to score higher in standardized intelligence and achievement tests, and to come from families having a higher socioeconomic level. Table 34 summarizes these data.

There are no great differences in the interests among 4-H member, 4-H dropout, and non-4-H boys and girls as measured by the Interest Inventory when intelligence and parent's socioeconomic status are controlled. However, discrepancies found in the trends of interests between the 6th and 12th Grades point out that there is reason to question the validity of the items used to measure interest in some areas. This is especially true in the juvenile activities' interest area and there seems to be reason to suspect the validity of items used to identify group activities and solitary activities interest.

Some rather unexpected trends were noted in changes of interests of boys and girls within the three membership groups over the three grade levels. Even though the girls showed a decline in juvenile activities' interest from 6th through 12th Grades and the boys did not, the overall mean score of the girls was higher than that of the boys in this area.

Interest shown in agriculture by the 4-H girls remained almost the same from 6th through 12th Grade, while interest in this area shown by girls of the two other groups and by 4-H drop-out boys decreased continually over the same period. The 4-H and non-4-H boys both showed less interest in agriculture at Ninth Grade than they did at either Sixth or Twelfth Grades.

Table 34

Differences Among Interest Area Mean Raw Scores Achieved by 4-H Member, 4-H Drop-out, and Non 4-H Boys and Girls in the Matched Group on the Interest Inventory (6th, 9th, and 12th Grades)[58]

Interest Area	Boys						Girls					
	Membership			Differences			Membership			Differences		
	4-H Members (N = 10)	4-H Drop-outs (N = 10)	Non 4-H Members (N = 10)	4-H vs. Non	4-H vs. D.O.	D.O. vs. Non	4-H Members (N = 10)	4-H Drop-outs (N = 10)	Non 4-H Members (N = 10)	4-H vs. Non	4-H vs. D.O.	D.O. vs. Non
Outdoor Team Sports	8.0	9.8	8.7	-0.7	-1.8	1.1	7.6	7.7	7.4	0.2	-0.1	0.3
Solitary Sports	8.0	9.5	9.6	-1.9	-1.5	-0.1	7.7	8.0	7.9	-0.2	-0.3	0.1
Agriculture	6.8	7.2	7.5	-0.7	-0.4	-0.3	6.5	6.6	6.9	-0.4	-0.1	-0.3
Juvenile Activity	5.3	5.3	5.1	0.2	0.0	0.2	5.3	6.0	5.8	-0.5	-0.7	0.2
Music	5.5	4.0	4.0	1.5	1.5	0.0	6.7	6.6	5.2	1.5	0.1	1.4
Art	2.5	1.7	2.0	0.5	0.8	0.3	2.1	1.9	3.0	-0.9	0.2	-1.1
Reading	5.8	4.9	5.2	0.6	0.9	-0.3	6.0	4.9	6.9	-0.9	1.1	-2.0
Group Acitivity	9.1	8.9	9.1	0.0	0.2	-0.2	9.3	10.0	9.6	-0.3	-0.7	0.4
Solitary Activity	3.4	3.8	3.5	-0.4	-0.4	0.3	3.6	3.0	3.1	0.5	0.6	-0.1

The latest study compares 4-H youth, non-4-H, and 4-H dropouts at the three grade levels (Wu, 1968). Results coincided with the first and third interest pattern studies with the exception of solitary activity interests at Grade 12. In contrast to the previous study, no variables are controlled in the first part of the study.

A significant difference in interests was revealed between high and low 4-H participation groups at Grade 6. The high 4-H participation group had significantly higher interests in the following areas:

a. Group activity.

b. Outdoor team sports.

Early and late drop-outs: A significant difference in the interests between early and late drop-outs existed at Grade 12.

The early drop-out group had significantly higher mean scores in the following areas:

a. Music.

b. Art.

c. Reading.

The late drop-out group had significantly higher mean scores in agriculture.

Interests were correlated with selected socio-psychological factors in another part of the study to test whether a relationship existed. Of five variables tested, significant relationships were found for two:

1. Personality

Data reveal a significant relationship between personality test scores and interests tested at Grades 6 and 12. Total personality score shows a significant correlation with Solitary Activity and Group Activity at both Grades 6 and 12, a significant correlation with Reading and Music at Grade 6 and a significant correlation with Art and Outdoor Team Sports at Grade 12.

2. Occupations

Interest in Agriculture was negatively correlated with parent occupational prestige while interest in Art was positively correlated. Interests and ability may well be related to a social expectation, i.e., a child from a family with higher occupational prestige would be expected to have low interest in agriculture.

Interests measured at Grade 12 were compared with three additional post-high school variables:

1. Adult participation was not closely related to interests measured at Grade 12. Interest in art was significantly correlated with adult participation. One may be more inclined to ascribe this to an area of interest rather than to need.

2. Attitudes toward adult education were more closely related to interest than to participation, though not significant. It may be more accurate to correlate interest patterns with attitude than with participation.

Agriculture group activity and juvenile activity were significantly and negatively correlated with these attitudes. Music was positively correlated with these attitudes.

3. Adult occupational choice had a significant relationship with earlier interests tested at Grade 12.

Table 35

Interest Areas Showing Higher Mean Scores

	Outdoor Team Sports	Solitary Sports	Agriculture	Reading	Solitary Activity	Juvenile Activity	Music	Art	Group Activity
Grade 6									
4-H	X	X	X				X		X
Non-4-H				X	X	X		X	
Grade 12									
4-H			X	X	X		X	X	
Non-4-H	X	X				X			X

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The occupational choice score was significantly correlated with reading and art, while agriculture was negatively correlated with the occupational choice score.

These results reveal a tendency for those adults who chose a higher status occupation (higher occupational score) to be those who had higher intrinsic interests, such as Reading and Art at Grade 12. Those who chose occupations with a lower score were those who had higher extrinsic interests, such as Solitary Sports and Agriculture. This was particularly true for the 4-H members.

By examining the relationship of interest and occupational choice by means of frequency counting, it was noticed that a somewhat different relationship occurred. Adults who had higher interests in Outdoor Team Sports, Music, and Group Activity chose the professions as their occupation. By way of contrast, adults who had higher interests in Solitary Sports and Solitary Activity chose to be Farmers and Manual Workers. One limitation for this kind of calculation is that only those people who had high interest scores (higher than 9) were included. In a strict sense this can only measure those people who had higher scores in each of the interest areas. One interesting feature is that adults with higher interest in Agriculture did not choose "Farmer" as their occupation.

Those interests identified through occupational score are similar to those interests for which 4-H members had higher scores at Grade 12. They are as follows:

a. Reading

b. Art

c. Music

d. Solitary Activity

All three interests (except Solitary Activity) with higher mean scores at Grade 12 for the 4-H group were highly correlated with Professionals.

Model of Interest for the 4-H Group

Figure 10 is used to illustrate high interest revealed at Grade 6, Grade 12, and 5 years after high school for the 4-H group. Interests highly scored (correlated with occupational choice and attitudes) 5 years after high school were placed at the top of the diagram, followed by those highly scored at Grades 12 and 6. Juvenile activity was placed at the bottom of the figure because it was not highly scored at either Grade 6 or Grade 12.

Figures 11 and 12 are used to illustrate how each of the above mentioned interests correlated with mental age, adult attitudes, and occupational choice. Personal social behavior was not included in this figure. The nature of the multiple correlation between personality components and each interest area did not illustrate whether the relationship was positive or negative. Figure 10 was derived with reference to the 4-H club membership, mental age, adult attitudes, and occupational choices.

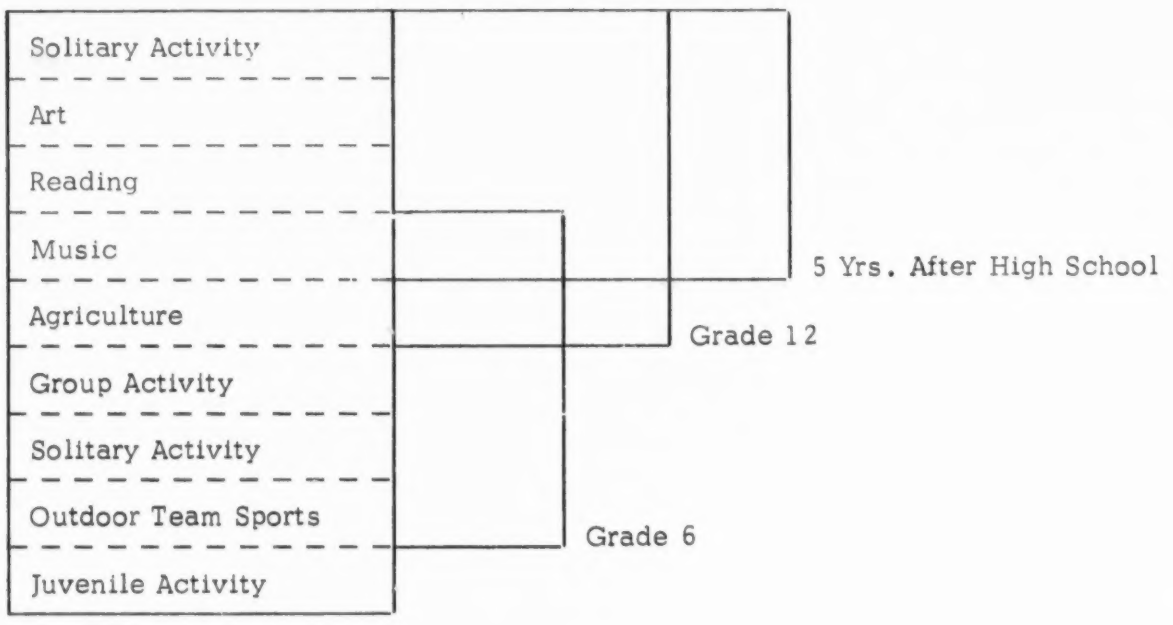

Fig. 10. High Interest Areas After Grade Six (4-H Group)[59]

Ladder of Interest (with respect to 4-H)	Mental Age	Attitudes	Occupational Choice
Reading	+r[a]	+r	+r[a]
Music	+r[a]	+r	+r
Solitary Activity	+r[a]	+r	+r
Art	+r	+r[a]	+r
Group Activity	-r[a]	-r[a]	-r[a]
Agriculture	-r[a]	-r[a]	-r[a]
Solitary Sports	-r	+r	-r[a]
Outdoor Team Sports	-r	-r[a]	-r
Juvenile Activity	-r[a]	-r[a]	-r

+r: Positive correlation coefficient
-r: Negative correlation coefficient
a: [a]significant correlation

Fig. 11. Interests and Related Factors (4-H Group)[60]

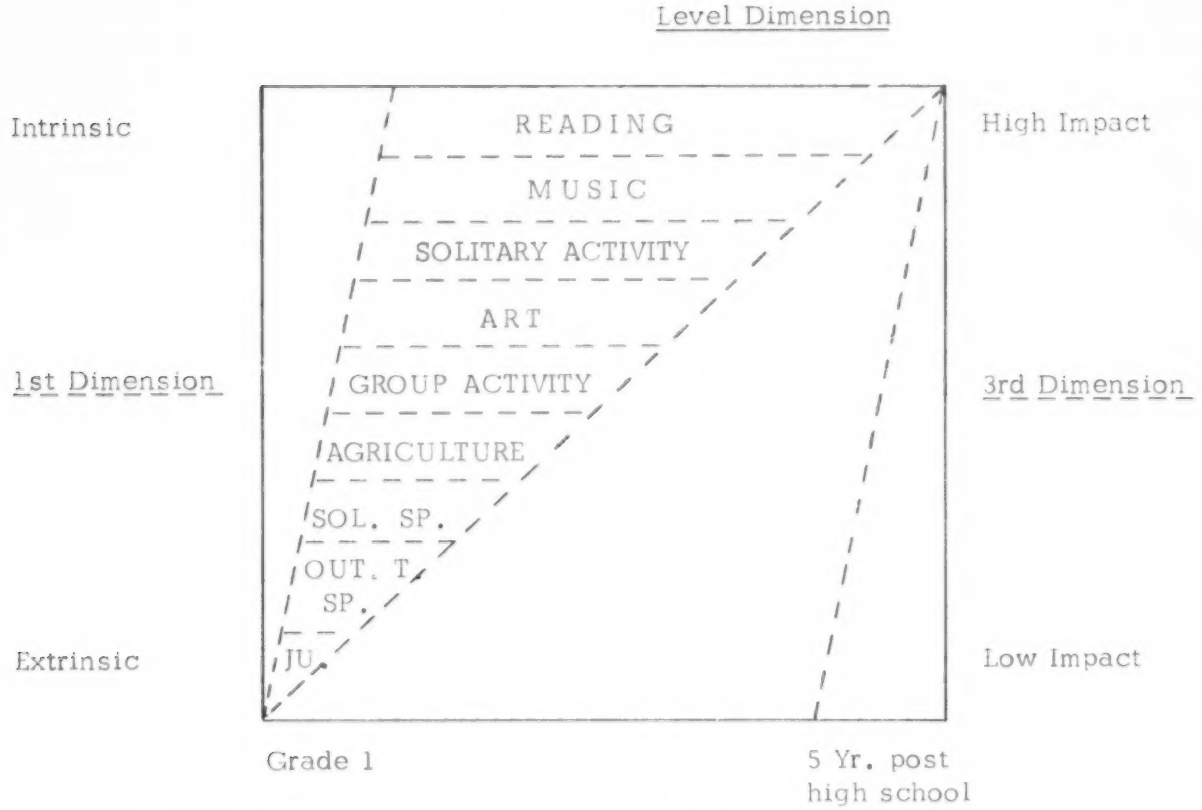

Fig. 12. The Ladder of Interest (4-H Members)[61]

Interests in Figures 11 and 12 were arranged with a slight modification from Figure 10. Solitary Activity and Art were exchanged with Reading and Music because Reading and Music were most highly correlated with occupational choice and attitudes 5 years after

high school. All interests located above Art were shown to have a positive correlation with related factors. In contrast, interest below Art (with the exception of Solitary Sports) were found to have a negative correlation with related factors.

Mental Age

Mental Age, Ability, and School Achievement were compared between 4-H members, 4-H drop-outs, and non-4-H members in the next two studies (Subaima, 1958; Pierce, 1958).

In evaluating the school achievement among the three groups of Ninth Grade girls their chronological age and mental age were given consideration. It was found that, on an average the 4-H drop-out group was 1 month 12 days older than the 4-year 4-H and non-4-H groups as shown in Table 31. Both these groups were of the same age. The difference in mental age between the three groups was significant. Also, the difference was found to be significant between 4-year 4-H group and the non-4-H group but not significant between the other two pairs. The 4-H drop-out group secured the second highest mean score in Mental Ability.

Mental Ability

Mental ability data were collected at Sixth Grade from 4-H members and non-4-H members and is shown in Table 37. Intelligence quotients of boys and girls combined show 4-H members to have a significantly higher score. Under separate analysis 4-H boys had a significantly higher score; the 4-H girls, a higher mean score that was not significant.

School Achievement

When results from school achievement tests were compared between Sixth and Ninth Grade boys and girls, 4-H members scored higher on all the variables in school achievement. As indicated in Tables 38 and 39 differences were significant in all areas but Social Studies at the Sixth Grade level when boys and girls were grouped together. Among Ninth Grade girls who were 4-H members, 1- and 2-year drop-outs, and non-4-H members, only the Total English sub-test was significantly in favor of 4-H members.

Table 36

Chronological Age and Mental Age

The Analyzed Data in Chronological Age and Mental Age of Ninth Grade Girls Who Had Over 4 Years' 4-H Experience, Girls Who Dropped Out After 1 and 2 Years 4-H Club Work, and Non 4-H Girls[62]

	N	$\bar{x}$	σ	F
Chronological Age = Age in Months Minus 150				
4-H Girls of 4 Years and Over	23	26.52	2.87	
4-H Drop-outs After 1 and 2 Years	23	27.91	6.07	0.643
Non 4-H Members	25	26.52	4.60	
Mental Age in Months				
4-H Girls of 4 Years and Over	23	197.43	24.25	
4-H Drop-outs After 1 and 2 Years	23	189.00	21.30	3.825*
Non 4-H Members	23	184.43	21.01	

* Significant between .01 and .05 levels

Table 37

Mental Ability

Mean Intelligence Quotients of Sixth Grade 4-H
and Non-4-H Boys and Girls in 10 Selected Wisconsin Communities[63]

COMMUNITY	BOYS						GIRLS						BOYS AND GIRLS					
	4-H		Non-4-H		"d"	Higher Mean Score	4-H		Non-4-H		"d"	Higher Mean Score	4-H		Non-4-H		"d"	Higher Mean Score
	Mean	N	Mean	N			Mean	N	Mean	N			Mean	N	Mean	N		
Winneconne	105.6	18	98.1	14	1.9	4-H	110.1	16	104.1	15	2.1	4-H**	107.7	34	101.2	29	2.5	4-H**
Denmark	102.6	16	102.6	13	0.6	Non	109.7	13	107.1	17	0.6	4-H	105.8	29	105.1	30	0.2	4-H
Kendall	102.7	3	98.7	26	0.2	4-H	126.0	1	104.1	15	9.9	4-H	108.5	4	100.7	41	0.6	4-H
Cazenovia	103.0	2	102.6	11	0.1	4-H	106.8	4	98.2	4	1.2	4-H	105.5	6	101.5	15	0.9	4-H
Blue River	130.0	6	88.6	9	1.9	4-H	115.6	7	98.3	3	1.5	4-H	122.2	13	91.0	12	2.8	4-H**
Wauzeka	107.3	6	95.9	12	1.8	4-H	108.6	5	101.1	7	1.5	4-H	107.9	11	97.8	19	2.4	4-H**
Port Wing	105.0	4	99.1	23	0.7	4-H	111.6	8	107.3	16	1.0	4-H	109.4	12	102.5	39	1.8	4-H
Gilman	109.4	7	99.8	35	2.0	4-H**	116.0	9	115.9	29	0.0	4-H	113.1	16	107.1	64	1.6	4-H
East Troy	95.0	11	103.5	37	1.6	Non	112.3	10	107.9	31	1.2	4-H	103.2	21	105.5	68	0.6	Non
Waterford	103.6	21	99.6	65	1.3	4-H	104.8	22	106.6	47	0.5	Non	104.2	43	102.5	112	0.8	4-H
Grand Totals	105.2	94	99.7	245	2.6	4-H*	110.1	95	107.4	184	1.8	4-H	107.6	189	103.0	429	3.5	4-H*

* - Significant at the .01 level

** - Significance in the region of doubt (Between .01 and .05 level)

Table 38

Summary of the Tables

Summary of Mean Scores of the Fourteen Factors Related to Mental Ability and School Achievement of Sixth Grade 4-H and Non-4-H Boys and Girls in Ten Selected Wisconsin Communities[64]

TABLE	BOYS						GIRLS						BOYS AND GIRLS					
	4-H		Non-4-H		"d"	Higher Mean Score	4-H		Non-4-H		"d"	Higher Mean Score	4-H		Non-4-H		"d"	Higher Mean Score
	Mean	N	Mean	N			Mean	N	Mean	N			Mean	N	Mean	N		
Mental Ability	105.2	94	99.7	245	2.6	4-H*	110.1	95	107.4	184	1.8	4-H	107.6	189	103.0	429	3.5	4-H*
Mental Ability as Rated by the Teacher	3.0	90	3.0	205	0.2	4-H	2.9	88	2.9	166	0.6	4-H	2.9	178	3.0	371	0.7	4-H
Rate of Reading	202.7	85	171.3	229	2.7	4-H*	223.0	88	194.2	178	2.8	4-H*	213.0	173	181.3	407	4.0	4-H*
Achievement in Reading	73.5	95	67.0	243	2.6	4-H**	82.3	94	74.2	185	3.3	4-H*	77.9	189	70.1	428	4.3	4-H*
Achievement in Arithmetic	51.2	95	44.0	243	3.7	4-H*	56.5	95	47.7	185	4.6	4-H*	53.8	190	45.6	428	5.9	4-H*
Achievement in English	35.7	92	30.9	242	3.3	4-H*	40.6	95	37.9	184	2.0	4-H**	38.2	187	33.9	426	4.1	4-H*
Achievement in Social Studies	52.2	92	52.5	242	0.0	Non	54.9	95	49.6	184	2.8	4-H*	53.6	187	51.3	426	1.2	4-H
Achievement in Science	30.1	92	28.1	242	1.9	4-H	30.6	95	29.1	185	1.8	4-H	30.3	187	28.5	427	2.7	4-H*
Achievement in Spelling	23.5	92	20.5	242	2.2	4-H**	30.3	95	27.1	185	2.5	4-H**	27.0	187	23.4	427	3.7	4-H*
Total Achievement	293.7	92	261.7	243	2.9	4-H*	320.3	94	293.2	184	2.8	4-H*	307.2	186	275.3	427	4.3	4-H*
School Achievement as Rated by the Teacher	2.9	90	3.0	210	2.1	4-H*	2.8	91	3.0	172	1.2	4-H	2.9	181	3.0	382	2.4	4-H*
Comprehension of Story, Maps, and Paragraphs	39.8	92	36.7	241	2.1	4-H**	44.4	95	40.5	184	3.3	4-H*	42.2	187	38.4	425	3.9	4-H*
Total Comprehension	91.6	92	87.8	240	0.9	4-H	101.9	95	91.9	184	3.9	4-H*	96.9	187	89.6	424	2.8	4-H*
Willingness to work as Rated by the Teacher	2.8	95	3.0	215	1.7	4-H	2.4	94	2.7	168	2.5	4-H*	2.6	189	2.9	383	3.2	4-H*

* - Significant at the .01 level
** - Significance in the region of doubt (Between .01 and .05 level)

Table 39

Summary of School Achievement

Summary of the Analyzed Data of Eleven Variables in School Achievement, Chronological Age, and Mental Age of 4 Year 4-H Girls, 1 & 2 Year 4-H Drop-outs, and Non 4-H Girls of the Ninth Grade of the Ten Selected Communities of Wisconsin[65]

Variables in School Achievement	4 Year 4-H Girls		1 & 2 Year 4-H Dropouts		Non-4-H Girls		F
	$\bar{x}$	σ	$\bar{x}$	σ	$\bar{x}$	σ	
Reading	44.43	4.64	43.26	7.52	40.00	7.95	0.679
Vocabulary	40.00	7.94	41.00	8.22	58.65	7.18	0.987
Spelling	29.91	10.71	32.57	9.52	26.67	8.84	2.1048
Literature	32.73	8.70	31.00	7.47	29.30	7.33	1.078
Total English	53.98	11.11	49.26	7.47	42.78	13.95	4.380*
Arithmetic Fundamentals	41.78	8.48	39.35	10.98	37.52	14.80	1.094
Arithmetic Problems	22.98	6.64	19.34	8.73	17.74	7.72	2.618
Social Studies History	28.87	8.17	26.09	6.52	28.00	12.74	0.551
Social Studies Geography	30.13	7.17	28.70	5.90	25.61	6.44	2.748
Science	39.78	6.17	36.08	7.08	36.43	7.40	1.166
T. S. Achievement	365.70	64.42	347.13	78.58	341.13	17.01	0.464
Chronological Age	26.52	2.87	27.91	6.07	26.52	4.60	0.643
Mental Age	197.48	24.25	169.00	21.30	184.43	21.01	3.825*

*Significant between .01 & .05 levels; N = 23 in each of three groups

Organizations Participated in by Youth

A 1965 study tested whether participation in 4-H club and other organizations affected student achievement patterns (Bholay, 1965). Study findings show a definite positive relationship between organizational experience of participant boys and girls and their personality and social development.

Organizational participant boys are significantly superior to non-participant boys in their achievement in school, Emotional Stability, Mental Ability, Social Qualities, Willingness to Work, and total teacher rating of their personal traits. Organizational participant girls are also significantly superior to non-participant girls in their achievement in school, home opportunities, mental ability, social qualities, willingness to work, and total teacher rating of their personal traits.

Boys and girls belonging to a greater number of organizations also showed a higher educational achievement than those belonging to fewer organizations. Educational achievement is higher and directly related to the number of organizations to which the youngsters belong.

There was no significant difference between 4-H club members and members of other organizations in their educational achievement when the overlapping membership of boys and girls was separated according to different organizations. A further attempt was made to select members who belonged to only one specific kind of organization. These different organizational groups were compared with the result that again in this case 4-H Club membership groups did not show any significantly higher educational achievement than other membership groups.

Adult Performance

In the last comparison between 4-H members and non-4-H members, adult performances 5 years after high school were analyzed (Wu, 1968). Questionnaires were sent to 339 rural youth in the 10 study communities, of which 72% were returned. Three areas were measured: participation in adult education, attitudes toward adult education, and occupational choice.

A significant difference in adult participation was found to exist between the 4-H group and the non-4-H group. Rural young adults who have had experiences in participating in a volunteer youth organization are likely to participate more in volunteer adult education.

Differences in the attitudes toward adult education among the three groups were more significant than the participation in adult education. The difference between the 4-H group and the non-4-H group was more evident than between the 4-H group and the drop-out group. Despite the fact that 4-H drop-outs did not show much difference from the 4-H group in participation in adult education, they had a more negative attitude toward participation than the 4-H group. Participation does not necessarily follow tested attitudes.

Adults from the 4-H group had significantly more positive attitudes toward adult education than adults from the non-4-H group and the 4-H drop-out group. Interestingly, adults from the 4-H drop-out group participated more in adult education in comparison with their lower attitude scores toward adult education.

Differences in occupational choice were not significant among the three groups. Nevertheless, the descriptive statistics showed that the 4-H group had a significantly different occupational choice than the non-4-H group as Table 35 illustrates. More adults from the 4-H group chose the professionals as their occupation than those from the non-4-H group. If the professional field is closely related to interest in Reading, Music, and Art, then the occupations chosen by the 4-H group were identical to those interests that scored higher at Grade 12. If this line of assumption holds, then the occupations and claimed interests were closely related.

There was little variation among 4-H members in their choice of occupation. 4-H members selected fewer occupations while members of the other groups selected a wider range of occupation.

Table 40

Differences in the Occupational Choice Five Years After High School Among 4-H Members, 4-H Dropouts, and Non 4-H Members (N = 82)

Group	4-H Members %	4-H Dropouts %	Non 4-H Members %	Total %
Professionals	13.4	11.0	7.3	31.7
Proprietors and Managers	0	1.2	1.2	2.4
Businessmen	0	2.4	0	2.4
Clerks and Kindred Workers	1.2	6.1	2.4	9.8
Manual Workers	1.2	3.7	6.1	11.0
Protective and Service Workers	0	1.2	1.2	2.4
Farmers	2.4	1.2	0	3.6
Housewife	4.9	13.4	18.3	36.6
Total	23.3	40.2	36.6	100.0

Age of Joining a 4-H Club

Discovering the factors which influence boys and girls to enroll in 4-H club work and continue in the program may help in increasing the number of boys and girls reached by the program and to decrease the present rate of dropouts. A study was done on Ninth Grade boys and girls who had had experience in 4-H to see if a relationship existed between age at joining clubs and certain family background characteristics (Brack, 1961). (See Table 41.)

No significant differences emerged among the different ages at joining for girls. The only factor showing significant differences for boys was the size of farm. Those who joined later came from larger farms than boys joining at younger ages.

Other results show that a tendency exists for children with Lutheran parents to join at younger ages than children with Catholic parents.

When boys or girls have brothers or sisters in 4-H Clubs there is a greater likelihood that

Table 41

Summary of Scores on Family Background Factors of 9th Grade Students by Age at Joining 4-H Clubs[66]

	Boys			Girls		
	Age at Joining			Age at Joining		
	under 10.5	10.5-11.5	over 11.5	under 10.5	10.5-11.5	over 11.5
N	27	27	38	30	32	22
Socio-economic Status	77.37	78.59	74.05	77.27	75.78	73.36
No. of organizations	3.48	3.30	2.42	2.93	3.16	2.77
No. of children in the family	3.89	4.00	4.92	4.23	4.19	4.23
Family prestige[a]	2.78	2.59	2.76	2.80	2.66	3.05
Financial status[a]	3.11	2.93	2.87	3.10	3.03	2.96
Social status	2.67	2.70	2.89	2.73	2.78	3.09
Family background[a]	2.82	2.78	2.90	2.90	2.72	2.91
Home opportunities[a]	2.93	2.89	2.82	2.70	2.62	2.73
Work ability of parents[a]	2.82	2.74	2.68	3.10	2.75	2.82
Special skills of parents[a]	3.04	3.00	2.82	2.87	2.81	2.96
Religious status	2.85	2.74	2.87	2.90	2.75	2.96
Moral and ethical standards[a]	2.70	2.63	2.68	2.73	2.59	2.73
Educational status[a]	2.89	2.89	3.00	2.87	2.94	2.91
Educational level of mother	10.89	10.89	10.50	10.77	10.47	9.73
Educational level of father	9.22	9.59	9.18	9.73	9.81	9.32
Size of farm	4.10	3.50	5.54	4.00	3.41	3.54
No. of milk cows	3.80	4.11	4.54	4.72	4.38	4.36

[a]Lower scores indicate higher ratings.

they will join at a younger age than if they did not have brothers or sisters in 4-H clubs.

Parents' participation and interest in the 4-H Club program also has a positive relationship to having their children join at a younger age. Students who indicated that their parents attend meetings regularly, act as 4-H Club leaders, and show an interest in having their children belong to 4-H Clubs join at a younger age than do students with parents who participated less and showed less interest in 4-H work for their children.

Tenure of Club Membership

Persistence in the 4-H Club program was compared to the same selected family background characteristics used in the above section. Data were collected from boys and girls who were 4-year 4-H members, 1-year drop-outs, and 2- or 3-year-drop-outs. The scores are summarized in Table 42.

No significant differences exist among girls when they were compared on family background characteristics by membership status. For boys,

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Table 42

Summary of Scores on Family Characteristics of 9th Grade Students by Membership Status in 4-H Clubs[67]

Family Characteristics	Boys			Girls		
	Membership Status			Membership Status		
	4-year members	1-year drop-outs	2-3 year drop-outs	4-year members	1-year drop-outs	2-3 year drop-outs
Socio-economic score	80.88	73.20	77.00	76.22	73.36	78.06
No. of organizations	4.27	1.85	2.58	3.43	2.71	2.56
No. of children	3.50	4.45	4.63	4.19	4.64	4.00
Family prestige*	2.58	2.90	2.63	2.65	2.79	2.88
Financial status*	2.77	3.25	2.95	3.05	2.86	3.00
Social status*	2.50	2.80	2.84	2.76	2.93	2.75
Family background	2.62	3.05	2.74	2.76	2.93	2.88
Home opportunities	2.69	3.10	2.95	2.68	2.71	2.56
Work ability of parents*	2.58	2.80	2.79	2.92	2.93	2.88
Special skills*	2.92	2.95	3.05	2.78	3.07	2.88
Religious status	2.58	2.85	2.84	2.84	3.29	2.56
Moral and ethical standards of parents*	2.54	2.70	2.79	2.60	2.93	2.75
Educational status	2.69	3.10	3.05	2.95	3.00	2.75
Educational level of mother	11.27	10.25	10.00	10.81	9.51	10.13
Educational level of father	9.35	9.75	9.21	9.81	10.29	9.25

*Lower scores indicate higher ratings

differences were evident: boys who were members 4 years or more came from families with higher socioeconomic status than boys who drop out after 1 year; and as the number of organizations to which parents belong increases, so does the number of years a boy continues in 4-H Club work.

Other findings show that boys and girls with brothers and sisters in 4-H clubs tend to remain in 4-H club work longer than those without siblings participating in 4-H programs. Parental influence, as measured by attendance at 4-H meetings, activity as 4-H Club leaders, and interest in having their child belong to 4-H Clubs, was closely associated with persistence in 4-H Club work.

The results of this study show the importance of obtaining interest and involvement of the family in the 4-H Club program if the member is to enroll at an early age and continue in 4-H Club work. It is necessary to obtain this interest and participation in the early stages of the club member's career, perhaps even before he joins. If the parent's cooperation and encouragement are not obtained before the end of the first year of club work, there is a great possibility that he will not re-enroll the second year. Parental influence on enrolment and re-enrolment cannot be ignored by those working with the 4-H Club program.

The close relationship between age at joining and tenure in 4-H Clubs with having siblings

in 4-H Clubs may suggest that recruitment efforts should be concentrated on the oldest members of the family. If the oldest child in the family becomes a member of a 4-H Club, there is a greater possibility of reaching the other members of the family.

LEVEL OF PROJECT PROGRESSION

The 4-H Club project has long been regarded as the part of the program providing opportunity for development of the individual and his surroundings. The traditional role of the 4-H project, however, is changing. Care is being taken in Wisconsin under a new "Expanded Approach to 4-H" that projects are selected which relate to the youth involved and his environment. As youth reach their teen years, it is now recommended that youth come together and as a group select a project. The type of project becomes secondary to the experience of learning to work together and the skills acquired.

Research on selection of projects and level of project progression as related to the educational and socioeconomic background of 4-H Club youth helps in evaluating the present and planning new 4-H programs. One of the longitudinal studies compared background data on boys and girls in Grades 1, 6, and 9 from 10 Wisconsin communities who had been 4-H members. (Lidster, 1963). Three aspects of 4-H Club projects were analyzed:

a. Type of project selected as related to the educational and socioeconomic background of the youth.

b. Number of projects selected as related to the educational and socioeconomic background of the youth.

c. Levels of project progression as related to the educational and socioeconomic background of the youth.

Type of Project Selected

Table 43 shows the shift over four years from one type of project to another.

Project enrolment over 4 years show a steady decrease in tractor, nature conservation, home grounds improvement, forestry, foods, clothing, and automotive. Steady increases occur in photography, insect study, house plants, horses, and dogs.

Those boys who carried dairy, electrical, and woodworking projects have a higher socioeconomic status than the boys in sheep and garden projects. Therefore the kinds of projects selected by 4-H Club members may be determined by the money which their families can afford to invest in the project material. The researcher observed that dairy projects tend to favor purebred animals. If these animals are bought from other breeders either with a view to obtaining a potential winner or with a view to introducing new blood lines into the herd, they represent a considerable outlay of cash. If dairy projects are available through natural reproduction of the members' home herd, this means that those dairy members who live on farms having purebred herds actually represent a higher economic stratum in the rural community because of the goods and chattels involved in a successful dairy enterprise. [Clubs in some of the urban core areas are now working out ways youngsters can travel to farms outside of the city to care for an "adopted" animal.]

Electrical projects reflect a similar economic situation. If the electrical members live on farms deriving their chief income from dairying, this project is a natural adjunct to the dairy enterprise, as much of the equipment necessary for modern dairying practices is electrical in nature. If there is no relationship between dairying and electrical projects, the fact that major electrification was part of the farming enterprise indicates a higher level of living.

Tenure status favoring ownership of farm holdings would indicate a relationship between this factor and the bias in the study toward those who are long-term residents in the community. It also shows that 4-H is selective in its membership in that the 4-H families come from those people who show the stability of ownership in the community, and does not lean heavily toward those members whose families have a less secure form of land tenure. This finding supports the conclusion that 4-H members represent a more affluent section of rural society.

There are more children in the families whose youngsters take sheep projects than in those who take dairy projects. This finding, along with the evidence of lower socioeconomic rating for those with the sheep projects, would indicate that the sheep project required less initial cash investment and was therefore within the means of the lower income groups in the community.

Teachers rate the dairy, electrical, and woodworking club members as having more home opportunities. This finding is a natural outcome of the finding that these projects represented a higher socioeconomic status.

Table 43

Project Enrolment - Numbers and Trends (1965-1967)

Project Enrolment	Wisconsin 1964	1965	1966	1967
Automotive	1,082	912	769	662
Beef	2,349	2,282	2,252	2,316
Bees	177	184	167	
Child Care	2,698	2,819	2,858	2,551
Clothing	18,031	17,102	15,454	15,362
Crafts	4,686	4,320	4,351	5,462
Crops	1,040	1,072	1,041	1,199
Dairy	14,132	10,387	9,786	10,685
Dog	543	706	785	1,047
Electricity	3,096	3,032	2,747	2,773
Foods	17,713	17,285	16,105	15,576
Food Preservation	1,864	1,785	1,607	
Forestry	2,055	1,782	1,854	1,822
Fruit	254	231	203	
Garden	8,531	8,444	8,748	8,396
Home Furnishings	3,986	3,989	3,643	3,545
Home Grounds Improvement	2,198	1,837	1,839	1,817
Horses	3,238	3,372	3,367	3,781
House Plants	1,375	1,375	1,420	1,781
Insect Study	721	829	730	934
Nature Conservation	965	1,095	819	601
Photography	3,733	3,658	3,759	3,962
Poultry	1,712	1,648	1,756	1,955
Rabbits	1,351	1,229	1,388	1,555
Sheep	1,137	987	984	1,031
Soil Conservation	163	163	144	218
Swine	1,692	1,363	1,312	1,409
Tractor	1,267	1,059	989	893
Wildlife Management	1,362	1,209	1,094	1,296
Woodworking	8,051	8,407	8,021	7,966
Total	111,202	104,563	99,992	111,953

The differences in the scores for the standardized achievement tests among the girls are small at Grades 1 and 6 but the girls in the livestock project have the lower score in each instance. The gap was narrowed at Grade 9. One can speculate as to whether or not the girls in livestock judging projects found the unique oral and writing experiences, which are an integral part of livestock judging activities, to be a stimulation to improved performance in the classroom. It would also lead one to inquire about the nature of the schools which these girls attended at the elementary level.

The girls in the livestock projects are apt to have a higher socioeconomic score than the girls in the clothing and food clubs. This finding indicates that the livestock projects are apt to be associated with those girls who represent a more favored segment of rural society.

The results of this study seem to indicate that the types of projects offered girls in 4-H Club work do not have financial limitations. This does not seem to be true for boys. It was found that boys coming from the lower socioeconomic groups tend to drop out of club work after the first year of membership. The difference in the drop-out rate between boys and girls in the lower socioeconomic families seems to suggest that there are financial limitations on the projects carried by these boys that does not allow them to compete successfully with the boys from the higher socioeconomic families.

As many of them take dairy projects it would support the findings for the boys that dairy project members come from a section of the rural community which has a higher level of living. It may also indicate that these girls have a more adequate supply of those personal and social and material amenities supplied by home economics activities. Therefore these girls lack the economic and personal motivation to seek their goals in 4-H work.

Number of Projects Selected

The 4-H members who take the greatest number of projects are apt to be lower achievers in school than those who take fewer projects. Since this evidence is present for the boys as well as the girls, it would appear that the high achievers do not stay in 4-H work long enough to take the maximum number of projects. This situation may also result from the necessity of taking several 4-H projects each year in order to make up a large total of project work. Such a responsibility may be required for superior academic achievement.

The high socioeconomic score for the boys taking the greater number of projects indicates that those who stay in 4-H Club work longer represent a more prosperous segment of the community. The same trend is present among the girls but is not so markedly supported by the data. This situation may arise because those students with a higher level of living may be able to set and maintain standards of dress and mobility not possible for lower socioeconomic groups.

Progression of Club Projects

The advancement of responsibility within the major project is measured at the following levels: no progress, some progress, over-half progress, and maximum progress.

The boys who show maximum project progression are poorer achievers in school than those who stay in 4-H Club work for a short time and show only less than half or over half progression. This situation is not so marked for the girls and would suggest that disparities in the nature of the project between agriculture and home economics have some bearing on this development.

The tendency of the low school achievers to be associated with maximum number of projects and the maximum amount of progression in the 4-H program would lead one to question the wisdom of encouraging long periods of membership in the present 4-H program.

EVALUATION OF THE PRESENT PROGRAM BY MEMBERS AND NON-MEMBERS

Most all of the data for the 4-H segment of the longitudinal project was obtained from sources used by the School Reorganization section. In addition to this, additional data were obtained by an activity questionnaire especially developed for the 4-H Club study.

In their responses to one of the questions, "What do you like best about 4-H Club work?" the Sixth Grade youngsters were divided into two groups: those who are now 4-H Club members and those who once were members but who dropped out of the program. Of the 669 youngsters in the sample there were 467 who never had been members up to Grade Six; 153 who were then members, and 49 who had been members but had dropped out of the program.

Table 44 identifies the number and percent of 153 members and the number and percent of 49 drop-outs whose answers to the question what they liked best about 4-H Club work. The number making the choice coincides wit the reasons given in the column on the left. mary of the answers given by the sample and were not available for the youngsters to check on a questionnaire. The differences between what members and drop-outs like best about the 4-H Club program can best be seen in comparing their responses to 4-H Club work as a learning opportunity and as a project program. Of the contributing members, 31% identify the "opportunity to learn" as what they liked best while only 16% of the drop-outs identified items which could be so classified. The "project program" as the best of 4-H Club work is identified by 55% of the drop-outs and by 21% of the continuing members. Working with other boys and girls and taking part in the special events are identified by the next largest proportion of boys and girls in both groups.

The tendency of members to originate, in greater numbers, among those members of the rural community with a higher level of living would lead one to assume that the 4-H objective of improving the living conditions of rural people is not being adequately met, as this finding indicates that the program is reaching mainly those whose living standard is already high.

The data imply that the high achievers deliberately leave the program early and this course of action leads one to seek the motive. The study subjects are those who have remained in one community throughout their membership tenure, so initial and terminal points were not affected by in- or out-migration. One of the companion studies[68] concluded that members dropped 4-H membership because, in their estimation, the program was weak.

Table 44

The Aspects of the 4-H Club Program Which were Liked Best by 4-H Club Members and Drop Outs in 10 Wisconsin Communities[69]

Aspect Liked Best	4-H Members		Drop Outs	
	Number	Percent	Number	Percent
The opportunity to learn	47	31	8	16
The regular meetings	14	9	3	6
Working with other boys and girls (belonging)	37	24	9	18
Special events (fairs, tours, trips, etc.)	24	16	8	16
The projects	32	21	18	35
Miscellaneous answers	8	5	1	2
Don't know or no response	10	7	7	14
Totals[1]	173	114	54	107

[1]Totals are greater than N = 153 and N = 49 and percent is greater than 100 because a few respondents identified more than one aspect of 4-H Club work which they liked best.

Table 45

Factors Which 4-H Club Members and Drop Outs Suggest to Make the 4-H Club Program Better[70]

Factors to Make the Program Better	4-H Members		Drop Outs	
	Number	Percent	Number	Percent
More and better project work (project meetings)	29	19	7	14
A larger membership group	20	13	10	20
More and better leaders	16	10	4	8
More recreation	7	5	3	6
More parent participation	4	3	1	2
More awards, tours, trips	6	4	5	10
Keep it the way it is	10	7	0	0
Miscellaneous answers	21	14	9	18
Don't know or no response	40	26	10	20
Totals	153	98	49	98

Table 45 identifies those factors which 4-H club members and drop-outs believe could make 4-H Club work better. Again, this is a summary of responses to an open-end question and not the results of the youngsters checking a series of responses provided by the researchers. It is noted in Table 45 that there are no answers which are given by any large group of youngsters. Also, 26% and 20%, respectively, said they didn't know what would make 4-H Club work better or did not respond to the item. This, in addition to the large number of single response miscellaneous factors, and the minor differences in response by members and drop-outs leads to several alternate conclusions. One of these would be that the youngsters in Grade 6 are not sufficiently well acquainted with the club program to respond validly to this type of question; another possible conclusion is that the variations are so great from club to club that no generalizations on factors of improvement can be made without knowing more of the specific club from which these youngsters come.

Table 46 summarizes the reasons given for not joining a 4-H Club by 467 non-4-H members in the Sixth Grade. One-third of these youngsters believed that no club was easily available. This reason was given in several different forms. For example, some wrote, "There is no club in our vicinity." "There is no club in this town." Others wrote, "The club is too far away; it would be too much driving for my mother." If a club were more easily available there is no assurance in these data that the non-members would join. However,

Table 46

The Reasons for Not Joining a 4-H Club by 467 Non-4-H Club Members in the Sixth Grade[71]

Reasons Given for Not Joining a 4-H Club	Number	Percent
No club easily available	156	33
Not interested	107	23
Already belong to other clubs	36	8
Too many other things to do	34	7
My parents do not approve	37	8
No information about club work	29	6
No opportunity to have projects	23	5
Miscellaneous	43	9
Don't know or no response	34	7
Totals[1]	499	106

[1]Totals are greater than N = 467 and percent is greater than 100 because some of the respondents identified more than one reason for not joining a 4-H Club.

Table 47

The Reasons Given for Dropping Their 4-H Club Membership by 49 Former 4-H Club Members in the Sixth Grade[72]

Reasons Given for Dropping 4-H Club Membership	Number	Percent
The club is not easily available	9	18
Not interested	3	6
Too many other things to do	7	14
My parents do not approve	2	4
The club program was weak	16	33
The club disbanded	5	10
Trouble with leaders	5	10
Don't know or no response	4	8
Totals[1]	51	103

[1]Totals are greater than N = 49 and percent is greater than 100 because two respondents identified two reasons for dropping out of their 4-H Club.

it is important to know that one-third of the sample youngsters think that availability is the important reason. The next largest response is given by the group who specifically identify lack of interest as the reason for not joining.

No other responses are given by more than 8% of the respondents. However, those who plead that they have too many other things to do or already belong to other clubs total 15%, if added together. The responses to this question suggest further analysis of available data to determine if among the non-members there is a difference in the backgrounds and academic achievement of those giving different reasons for not joining. For example, are the one-third who say no club is available superior to those who give other reasons for not joining?

In Table 47 the reasons are summarized as to why 49 former 4-H Club members dropped their membership. A comparison of some of these reasons with those in Table 46 which were given for not joining shows some similiarity. For example 18% who dropped out gave lack of availability of a club as a reason while 33% of those who had never joined had this reason. Table 46 shows that 23% were not interested enough to join and Table 47 shows that only 6% of the drop-outs gave that reason. Similarity is noted between Tables 46 and 47 in the proportion who have too many other things to do or are in other clubs. This total is 15% of non-joiners and 14% of the drop-outs. This group of non-joiners and drop-outs who give this type of answer should be studied further before any generalization can be made. Since other studies have shown that 4-H members actually take part in more activities than non-members, it may be that a more specific determination should be made of what "too many other things to do" or "already belong to other clubs" actually means to the youngsters responding.

Of most importance in Table 47 is the fact that one-third of the respondents identified reasons for dropping out which were critical of the total 4-H Club program within their club. Some of these reasons were educational in nature; others, administrative. Example of responses are: "I had two sewing lessons and no cooking lessons in 2 years of Club work"; "I did not know what to take." "I was never told when meetings were to be held."
In summary:

—4-H Clubs are selective in their membership, favoring those from higher income and social status families. 4-H Club members tend to come from large farms whose families are active in the community. If these families are involved with 4-H Club activities, club members continue longer in 4-H Club work.

—Interest patterns show little differences between 4-H Club members, non-members, and 4-H Club drop-outs when intelligence and parents' socioeconomic status are controlled.

—4-H Club members are higher achievers in school and have higher intelligence quotients. Their interest and participation in 4-H Club activities has led them to seek adult education.

—No significant difference exists between 4-H and non-4-H boys and girls in the personal and social behavior.

—Evaluation of the present program by 4-H Club members and non-members showed discrepancies in attitudes. Members like the "opportunity to learn" in the 4-H Club program; drop-outs liked the projects best. Yet 4-H members feel the project work could be much improved while the drop-outs believe a larger membership group is needed. Non-4-H Club members did not join chiefly because of the lack of available clubs and no interest. Most drop-outs left 4-H because they felt the program was weak.

V

DISSEMINATING RESEARCH: INTRODUCING CHANGE

Identifying the problem, then researching the differences in school reorganization and the value of 4-H Clubs, is only part of the task. The next is to disseminate the findings in the most effective way. The problem goes beyond publishing the results of this particular longitudinal study. Research, if it is to be valuable and usable, must be exposed to the people who can introduce the needed change in such a way that they can objectively understand the situation and desire to improve it. Research helps school administrators see the situation more clearly, objectively, and often can put the immediate community school situation into perspective with other schools in the state. Research, as presented in this longitudinal study, provides a basis for needed changes. In a sense, the whole study evaluates the effectiveness of two aspects of rural education: the organization of the schools and 4-H Clubs.

INFLUENCE OF SELECTED CULTURAL CHARACTERISTICS

To introduce change in a community, understanding individuals and groups within that community is paramount. What are their attitudes towards education? How receptive are particular communities to change? The purpose of four of the studies included in this longitudinal project is to determine the attitudes of a sample of rural residents, living in delineated neighborhoods toward selected educational programs, practices, and proposals.

A selection was made of the general areas of education which constitute the major interest and participation of farm families. The major educational interests and participation of farm families are considered to be focused in the school, in farming programs and practices, and in formal organizations. The selection of these three areas of education is based on the assumption that the farm family is vitally concerned with making a living, educating its children, and fulfilling certain social, educational, and religious needs by participating in available organizations.

Previous studies reveal there is much variation among cultural groups in their attitudes toward selected rural educational programs, practices, and proposals. These differences in attitudes from one group to the other are expressed in the form of varying degrees of acceptance of specific educational programs and practices as represented by the schools, farming programs, and formal organizations. These degrees of acceptance can be seen to vary both from one cultural group to the other, as well as from one program to the other within groups. Some proof of these differences can be seen in the evidence that certain ethnic groups express greater favorability towards specific educational programs than do others.

The degree to which an individual or group accepts or puts into operation an educational program or practice is greatly conditioned by cultural background. Such cultural factors as ethnic and religious composition, strength of family and primary group ties, values that a family places on education, occupation and economic conditions, make up the complex socio-cultural atmosphere that influences attitudes toward education. Findings from several previous studies conclude that, of all the cultural characteristics studied, nationality and religion operating jointly is the most important single factor related to educational attitudes. Not only is the combination of ethnic background and religion significantly related to educational attitudes but the homogeniety of these two cultural characteristics among certain rural locality groups influences acceptance of or resistance to educational programs.

The purpose of the first study was to determine if any differences existed between

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homogeneous and heterogeneous groups in respect to their nationality and religion, and in their attitudes toward specific school, farming and formal organizational practices. (Duncan, 1953). Neighborhood groups are defined as small, rural-locality groups identified on the basis of their sense of belonging together or are grouped by common bonds of nationality, religion, school district, economic services, formal organizations, informal associates, and mutual aid. Nineteen matched pairs of rural neighborhoods were selected, based on the Wisconsin Ethnic Stock Maps[73] and interviews with County school personnel and agricultural agents. Only the areas on the Ethnic Stock Map in which there is 80% or more of one nationality were used for selection of the homogeneous neighborhoods for this study. The heterogeneous neighborhoods were selected from areas in which there were two or more nationalities, with neither predominating. Groupings of people known to be homogeneous in their ethnic and religious makeup and groupings known to be heterogeneous in their ethnic and religious makeup were selected from the Ethnic Stock Map. Attempts were made to select areas that represented every major ethnic-religious group in the state. As a result the following are contained in the study: (a) German Catholic, (b) German Lutheran, (c) Norwegian Lutheran, (d) Danish Lutheran, (e) Swedish Lutheran, (f) Polish Catholic, and (g) Swiss Evangelical and Reformed.

Data for the study were collected entirely by interview. Questions centered around the school, farming programs and practices and informal organizations, and socioeconomic levels. An index of Families was used to determine what bearing family and kinship strength have on the acceptance of certain school, farming, and organizational practices. And in an Index of Neighborhood Strength interviewees were asked to indicate the extent to which they or their neighbors engaged in certain group identification activities.

For the neighborhoods studied, the people living in a heterogeneous culture attain and express desires for higher educational goals than those living in homogeneous cultures. Furthermore, there is a greater difference between homogeneous and heterogeneous neighborhoods in the attainment of, and the desire for, educational ends than in the attitudes toward the means for reaching these ends. Heterogeneous neighborhoods are more favorable toward two-thirds of the school programs and practices analyzed. These programs and practices represent a break from traditional school practices and are the more modern changes in the direction of a broad and progressive program. This indicates that a heterogeneous culture allows for the acceptance of innovations and changes toward a more progressive school curriculum.

The programs and practices in which there are similarities between homogeneous and heterogeneous neighborhoods are represented by the traditional and basic programs and practices fundamental to a minimum essential curriculum. This evidence suggests that the homogeneous culture in part influences the acceptance of school practices. On an index of 25 farming practices the heterogeneous neighborhoods show significantly greater favorability toward the acceptance of farming practices than do homogeneous neighborhoods. The fact that heterogeneous neighborhoods show significantly higher farming practice acceptance scores indicates that these neighborhoods have advanced further in modern farming practices. There is a factor of culture and tradition operating in homogeneous neighborhoods that limits the acceptance of improved farming practices.

Homogeneous neighborhood subjects belong to more organizations while heterogeneous neighborhood subjects show greater participation in attending meetings, holding offices, and serving on committees. These three elements: attending meetings, holding office, and serving on committees, imply an increasing degree of leadership and action by organizational participants. When the data on these three elements are observed in order it is noted that participation becomes progressively in favor of heterogeneous neighborhoods. A homogeneous culture promotes a conformity of its members in participating in organizations that perpetuates that culture. The culture is more solidly grounded in the traditions, customs, and values of religion and ethnic background. Furthermore, it shows the strength of religion and ethnic background in the determination of attitudes toward organizations advocating technological and social change. The greater degree of participation by heterogeneous neighborhoods in agricultural and school organizations indicates that a heterogeneous culture permits its members to participate in organizations that advocate progress in agricultural technology and in improving the schools to a greater extent than in homogeneous cultures.

The evidence presented on the differences between homogeneous and heterogeneous neighborhoods in the acceptance of school programs and practices, farming practices, and formal organizations indicates a positive association among these three areas of education. This association is more pronounced

among heterogeneous neighborhoods. Heterogeneous neighborhoods consistently show higher socioeconomic status scores than do homogeneous neighborhoods.

When related to the acceptance of educational programs and practices, in general, there is a positive association between socioeconomic status and attitudes toward education. Conversely, the association between the acceptance of educational practices and neighborhood and family strength is a negative one. This evidence suggests the general conclusion that for the neighborhoods studied, the adherence to primary group identification and the influence of parents, family, and kin provides a sociocultural atmosphere which is a deterrent to the development of favorable attitudes toward education. This is more pronounced in homogeneous neighborhoods than in heterogeneous neighborhoods.

In comparing the acceptance of selected school programs and practices and the acceptance of an index of Farming Practices by the two types of neighborhoods, there is a wider differentiation between homogeneous and heterogeneous neighborhoods on farming practices than on school programs and practices.

The overall picture of acceptance shows heterogeneous neighborhoods consistently more favorable toward a majority of the educational programs and practices. Although differences in favorability among neighborhoods of the same ethnic composition exist, nevertheless, a general location on a favorability continuum can be established for each neighborhood. A ranking of the neighborhoods by quartiles from least favorable to most favorable shows the majority of the homogeneous neighborhoods to be in the lower two quartiles and a majority of the heterogeneous neighborhoods to be in the upper two quartiles. According to favorability from low to high the homogeneous neighborhoods rank as follows: (a) German and Polish Catholic, (b) German Lutheran, (c) Norwegian Lutheran, (d) Swiss Evangelical and Reformed, (e) Swedish Lutheran, and (f) Danish Lutheran.

Heterogeneous neighborhoods consistently rank higher in farming practice acceptance scores than homogeneous neighborhoods. When the scores are ranked, the fourth quartile contains seven heterogeneous neighborhoods and three homogeneous neighborhoods of the Swiss and Norwegian ethnic stock.

The neighborhoods ranking in quartiles three and four in organizational participation are divided equally between homogeneous and heterogeneous neighborhoods. The homogeneous neighborhoods with the largest organizational participation scores are of Norwegian and German ethnic stock. Homogeneous neighborhoods consistently rank higher in participation scores in religious and social organizations while heterogeneous neighborhoods rank higher in participation in agricultural and school organization.

The heterogeneous neighborhoods rank higher than homogeneous neighborhoods on socioeconomic status scores. The homogeneous neighborhoods in the fourth quartile on socioeconomic status scores are of Swiss and Norwegian ethnic stock.

Homogeneous neighborhoods consistently rank higher in neighborhood and family strength scores. The neighborhoods scoring highest in neighborhood and family strength are of German and Swiss ethnic stock. A second study (Krull, 1963) completed 10 years later on the same population sample, reinforces the above conclusions. Heterogeneous cultures tended to favor changes more readily than homogeneous cultures in educational goals and aspirations and in school programs and practices. The third study supports the 1964 study above (Maughan, 1964). In addition, the following changes were noted in the intervening 10 years:

1. Eleven of the original 19 homogeneous neighborhoods did not meet the criteria for homogeneity in 1963 due to change in ethnic and/or religious composition. [Even though 11 of the original 19 homogeneous neighborhoods did not meet the criteria for homogeneity in 1963 due to change in ethnic and/or religious composition since 1953, they were compared with the 19 heterogeneous in analyzing this change toward acceptance of selected educational practices and programs.]

2. Both heterogeneous and homogeneous neighborhood groups indicated significant change toward acceptance of improved educational curriculum and facilities. This phenomenon is emphasized by the increased interest in school reorganization, with broader opportunities for youth, the present educational attainment of husband, wife, and children out of school, the education desired for children in school, and the reduced number of grades that one teacher can handle for best results in the classroom.

3. Homogeneous and heterogeneous neighborhood groups indicate an unfavorable attitude change toward the need for joint parent and teacher planning of the curriculum and the need of parent organizations in the school.

4. Homogeneous and heterogeneous neighborhood residents showed less interest in attending evening classes taught by the county agent, home agent, or agriculture teacher.

5. Heterogeneous neighborhood groups continued to lead homogeneous groups in the acceptance of improved farm practices. Results of the research indicated that the margin of acceptance between the two groups was considerably less in 1963 than it was in 1953.

By 1965, when the fourth study was done (Butterfield, 1965), a third study group was parceled out—those localities which were homogeneous in 1953 and by 1963 were not 80% homogeneous. The three locality group types were compared on their attitude favorability toward educational practices, adult education participation, and organizational participation. In addition, rural adults with certain religious and ethnic patterns living in one kind of localit group were compared on the same three items. Orientation to learning was also measured among rural adults living in the three kinds of locality groups.

Findings indicate:

—Rural adults living in locality groups which are heterogeneous as to their religious and ethnic background exhibit more positive attitudes toward elementary school practices than do those living in locality groups which have been homogeneous but have changed to heterogene- during the past 10 years. (The changed group might be expected to lie between the homogeneous and heterogeneous in attitude toward high school programs.)

—Rural adults living in heterogeneous and changed type locality groups are more favorable toward high school education than are rural adults living in homogeneous locality groups.

—Rural adults living in heterogeneous locality groups have a more favorable attitude toward adult educational participation than do adults living in the homogeneous groups. Adults in changed locality group types look with greater favor on recreational activities than do adults in homogeneous groups. Rural adults who live in homogeneous locality groups appear to feel that they do not have time to learn new recreational activities. The homogeneous and changed groups rely on fewer available sources of technical information than do adults living in heterogeneous groups.

—Little difference is evident in the degree of organizational participation among the groups; however, adults living in homogeneous locality group types participate more in farm organizations than do adults in changed groups.

—Danish Lutheran rural adults living in heterogeneous locality groups hold significantly more positive attitudes toward organizational participation than do Danish Lutheran rural adults living in homogeneous or changed locality groups.

—German Catholic rural adults living in heterogeneous locality groups have a more favorable attitude toward adult educational participation than do German Catholic rural adults living in homogeneous locality groups.

—Swiss Evangelical rural adults living in a homogeneous locality group are more favorable toward organizational participation than are any of the other homogeneous religious-ethnic patterns represented in the study. Norwegian Lutherans and German Catholics are more favorable toward organizational participation than Danish Lutherans when living in homogeneous locality groups.

—Swiss Evangelical rural adults living in homogeneous locality groups are more favorable toward farm organizational participation than are any of the other ethnic-religious patterns represented in the study. The Norwegian-Lutherans and German Catholics exceed the Danish Lutherans in the degree of attitude favorability toward farm organizational participation.

—Rural adults living in the Swiss Evangelical religious-ethnic pattern favor school and civic organizational participation to a higher degree than do the German Catholic and Danish Lutheran groups when living in their homogeneous religious-ethnic pattern.

—In attitude toward religious organizational participation [other than worship service, per se], the German Catholics, Swiss Evangelical, and Norwegian Lutherans each exceed the Danish Lutherans in attitude favorability when these groups of rural adults live in locality groups homogeneous in their religious-ethnic pattern.

—The rural adults of this study and adults living in cultural settings similar to those here

described are indeed interested in adult educational activities, and this interest is not limited to narrow vocational interests.

—Rural adults from the changed group are more learning-oriented than are rural adults from the homogeneous and heterogeneous groups.

EVALUATION OF MEDIA

A second aid to effectively introducing change on the basis of research findings is to know which media is most effective in presenting the findings. Although the Cooperative Extension Service (of which the 4-H Club organization is a part) has grown to become one of the largest adult education agencies in the world, a difficulty exists to bring current research findings to the point of application. Moreover, the research on effective teaching methods has not always kept pace with the research on agricultural subject matter. The result has often been that a volume of technical research findings are disseminated by only one medium, without much proof as to its effectiveness in comparison with other media available.

Three studies deal with the problem of media (Busset, 1964; Edwards, 1961; Pinnock, 1965). Busset (1964) evaluates the effectiveness of lecture, bulletin, 16 mm. film, and television in developing in adults a knowledge of research findings. In addition, other procedural practices were introduced into the study, such as the use of discussion following the presentation of, but prior to completion of, the check test; the use of a delayed response between the time of presenting the findings and completion of the check test, the presentation of the findings by a source once removed from the original researcher and staff, and the relationship between school grade level attainment and check test scores. Cognizance will be made of the impact of such factors and procedures in the analysis of the data and they will be treated as secondary objectives in the study. The research findings utilized for the study were on school district reorganization. The findings used were unpublished material in the field of education for which the general public held a feeling of affinity and understanding and to which they attached importance. The findings favorably lent themselves to the form of presentation peculiar to each of the media used with neither favoritism nor discrimination, and could be condensed into the brief period allotted for their presentation.

Seven Wisconsin-based groups participated in the study: 151 school board members in Racine County; 78 leaders in Homemakers' Clubs in Marinette County; 313 Homemakers' Club members in Chippewa County; 106 teachers and County College students in Manitowoc County; leaders and members of Homemakers Clubs in Richland County, and a class of 14 graduate students at the University of Wisconsin. Care was taken that identical information appeared in every medium of presentation and that each medium adequately covered the questions used in the pencil-paper test of nineteen questions for knowledge gained.

In the comparison of the use of the lecture and bulletin in presenting research findings to four of the five groups of participants used in the study, data revealed that the difference in mean scores on the test was favorable to the lecture and that in three of the comparisons the difference was significant. In the one instance where the test scores were favorable to the bulletin, the difference in the scores was negligible. In this instance the lecture was given by volunteer local leaders. In every instance where the use of the lecture resulted in higher scores than the use of the bulletin, the lecture was given by the researcher. When given by the researcher, the lecture appears to be a more effective medium than the bulletin to use in presenting research findings.

In the comparison of the use of the lecture and the 16 mm. film in presenting research findings to three of the five groups of participants in the study, data revealed that the difference in mean scores on the test was favorable to the lecture in all three of the comparisons and that the difference was significant in two of the comparisons. When given by the researcher, the lecture again appears to be a more effective medium to use in presenting research findings than the film.

The bulletin and the 16 mm. film were compared in their use with three groups. Two of the groups met in formalized meetings with members of the research staff present. In this meeting the data revealed that the difference in mean scores on the test was favorable to the bulletin on one occasion and to the film on the other. When these same media were used in the setting of small, informal group meetings without the research staff present, the bulletin displayed a significant superiority in mean score. The influence of the setting and attendant factors renders unreliable a conclusion that the bulletin is more effective than the film in general usage in presenting research findings.

Only one comparison included television and its use was compared with the bulletin. Research

findings presented by these means were received by participants individually in their homes. Both an immediate and delayed response methodology was used. In the explanation of this procedure to the participants, the bulletin and TV groups were equally motivated to either read or view the findings. In both types of response the bulletin scored significantly higher than television. The data support the conclusion that in the setting identified, the bulletin appears to be more effective than television in presenting research findings.

The study did not include a direct comparison of all four media with any one group. However, from examination of the study data and conclusions drawn therefrom, it appears that the most effective media for presenting research findings is the lecture when given by the researcher.

To test whether lecture effectiveness might measurably decrease when presented by a source once removed from the original [the author did all four media presentations] club leaders in one of the groups gave the lecture. The resultant scores were slightly lower, but the overall superior effectiveness of the lecture method was not lost. Both TV and film did not perform up to expectations. Previous research has indicated radio and TV to be superior over bulletins. It may be that the kind of research findings reported in this instance are not appropriate material for visual media.

Four years later another study was done measuring media effectiveness in Wisconsin and Alabama (Pinnock, 1965). Materials from the 4-H Club portion of this longitudinal study were transmitted to local 4-H Club leaders in Alabama and Wisconsin through bulletins and 16 mm. film. An added feature of professional and local leader-led discussion was associated with each medium. Again, the author directed the preparation of both media. Six groups participated as recipients of the research findings; a seventh group was used purely as a control group and was not exposed to any of the findings presented by the two media. Members of the seven groups were either current 4-H Club local leaders or individuals who had served previously as 4-H Club local leaders in Alabama. The 328 participants represented 4-H Club local leadership from 21 Alabama counties having a Negro Cooperative Extension Staff. The selection of the 15 Caucasian groups in Wisconsin was carried out in essentially the same manner as the selection of the Negro groups in Alabama. The investigation conducted in Wisconsin was separate and independent from the investigation in Alabama. The Alabama study is, in part, a replica of the Wisconsin study and was conducted simultaneously with the Wisconsin study.

Selection of local leaders as discussion leaders was done entirely by the County Extension staff. The professional leaders were chosen by the State Leader and his administrative staff, who, in most instances, decided to use the county agent, the assistant county agent, the home demonstration agent, clergyman, or a teacher.

The measuring device employed for determining knowledge gained from the findings was an 18-question multiple choice pencil-and-paper test. The extent to which changes in previous knowledge had occurred was to be determined by a 25 true and false pencil-and-paper test. Participants were asked to check those statements they believe and to leave blank those statements they did not believe. Each test sheet had attached a leader's information sheet designed to get information relative to years of leadership, educational achievement, sex, age, and place of residence.

Research concluded that there is no advantage in terms of knowledge gained in choosing film over bulletin or vice-versa in presenting research findings on 4-H Club work to Negro 4-H Club local leaders in Alabama. The choice between the two media (film and bulletin) should be based on cost, size of population to be informed, and the reading level of the population. In such a learning situation, 4-H Club local leaders in Alabama learn as well without discussion as they do when discussion follows the presentation of the material to be learned. The hypothesis that the impact of professional leaders leading discussions creates no significant difference in mean scores among 4-H Club local leaders has been confirmed. The educational level completed among Negro 4-H Club local leaders in Alabama is positively related to the amount of knowledge gained in learning situations. Age was found to have a negative relationship to the mean scores, though the age differential may more correctly indicate the difference in educational level between the older and younger participants.

When local Negro 4-H Club leaders in Alabama were compared to local Caucasian 4-H leaders in Wisconsin, definite regional differences existed in favor of the Wisconsin groups. The results are not surprising when the low per capita income of Alabama Negroes is taken into consideration, along with their more limited education and cultural exposure. The researcher concluded that in the absence

of finance and education, it is almost impossible to expect a people to perform equally on tests as those people who have constantly been exposed to a more comprehensive educational system.

The amount of changes in previous knowledge held about 4-H Club work can be attributed to the educational level completed by the local leader. A high positive correlation existed between years of schooling completed and test scores in the group exposed to the 4-H material through film, bulletin, and discussion. A similar tendency showed up in the control group where a low positive correlation was identified between educational levels completed and test scores.

The third and final study examined whether or not the knowledge gained by members of a group is influenced by the media used, by discussion, and by the discussion leaders (Busset, 1964). Findings from the first of the media studies raised new questions relative to the media, particularly as to the effect of discussion when used in connection with the dissemination of information. The 250 study participants were volunteer 4-H Club leaders in attendance at the Annual Conference of 4-H Club Leaders, and Cooperative Extension agents at Hutchinson, Kansas, in April 1963.

The participants were divided by random means into three groups of approximately equal size. Each of the three groups received the same research findings but by three different media. These research findings resulted from a recent 4-H Club study, so the information was of interest to the participants. The media of film, lecture, and bulletin were used to transmit the research results to the three groups of participants. A 20-minute discussion period followed the presentation of research results. Each of the three large groups receiving research results by either film, lecture, or bulletin media was divided into eight discussion groups which were led by previously assigned leaders. Twelve leaders were professional persons; the other twelve were local volunteers. This division was also made randomly. One-half of the professional and one-half of the local discussion leaders assumed a positive attitude toward the discussion task, with the other half of the discussion leaders assuming a negative attitude. Those taking part in the discussion did not know that an attitude role was being played. Following the 20-minute discussions, participants were administered a two-part paper-and-pencil test. The test questions were based on common information transmitted to the participants by the three different media, and discussed under conditions described above. The mean scores from the test were used to determine if there was any significant difference in knowledge gained among the 12 groups.

The procedure followed in the dissemination of information, discussion, and data collection is depicted in Figure 13 which includes all of the organizational elements and their relationship within the study. Each of the three groups was organized in the same way for the discussions. The lecture group shown in Figure 13 is illustrated in detail to indicate formation of the discussion groups and the collection of data. The diagram in Figure 13 shows the plan for dissemination of information, organization for discussion, and collection of data from participants. Titles in the lower boxes indicate type and orientation of discussion leadership, by groups.

Twelve County Extension agents were asked to serve as discussion leaders, selected on the basis of reliability and of interest in the 4-H Club program. Each was asked to select and bring to the conference a local 4-H club leader, who had served as a community leader for at least 2 years. The only selection criterion suggested to the agents was that the leader be reliable and be capable of leading a discussion. These 12 Extension agents and 12 local leaders would serve as discussion leaders to the 24 discussion groups.

On the basis of the findings it was concluded that if a choice is to be made of the three media for presenting research results to adult groups, the best choice would be the lecture medium, when the lecture is given by the researcher. The first study on media reached a similar conclusion (Edwards, 1961). The conclusion reached is that the lecture method is the most effective of the three media employed to bring information to groups of adults, when that presentation is followed by discussion. The film method is second in effectiveness, followed by bulletin. The evidence in the local-led groups showing no difference between positively and negatively oriented leadership and a significant difference on this comparison with professional leaders suggests the possibility that adults react differently to attitudes when the leader is a local volunteer and when the leader is a professional. The adult who tends to accept the word of the professional may not hesitate to challenge the same opinion expressed by a contemporary acting as discussion leader.

It is possible to conclude that the attitude of the local discussion leader has relatively little effect on the knowledge gained by groups of adults who have received research findings by various media, and then participated in a follow-up discussion on the information received.

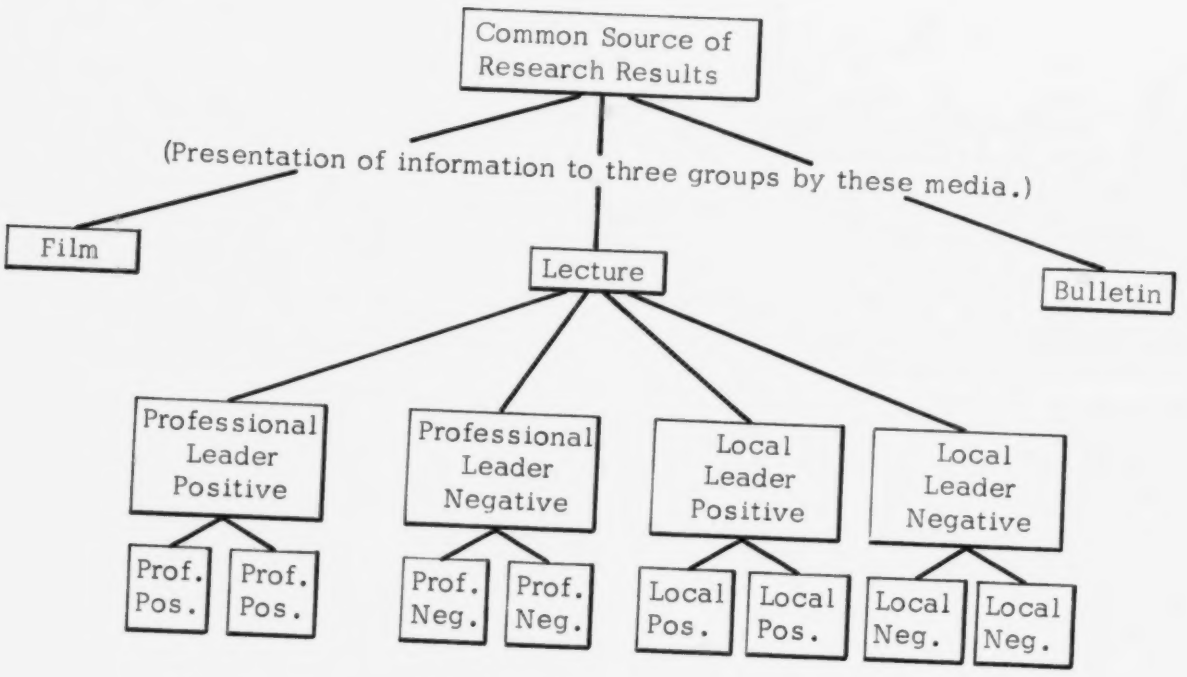

Fig. 13. Diagram for Dissemination of Research Finding to Discussion Groups[74]

Adults expect an interested, positive attitude on the part of professional educators with whom they have an association. When they find this positive attitude, they gain knowledge more effectively. When they do not perceive such an attitude, they are concerned to the extent that they do not learn as much.

When an effective job is done in transmitting research results to adults by lecture, film or bulletin, local volunteers are as effective as professional discussion leaders in affecting the learning of adults.

Even though the lecture was the most effective of the media used, the differences were not great. The implication is that effective, economical, wide-scale dissemination of information must depend on such media as film and bulletin, and can do so without seriously affecting the learning outcomes of adults.

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CONCLUSION

As the communications gap closes and mobility becomes a way of life, youths from rural areas are thrust into a common competition for jobs and higher education with urban-educated youth. The pressure on all who are responsible for rural education has accelerated. In 20 years, the isolated world of rural schools has become obsolete. Reorganization of schools is one major way learning opportunities in rural areas can be improved. Restructuring the 4-H Club movement to take its load of youth development is another. In the midst of major changes in youth education, this longitudinal study tried to measure the effectiveness of school reorganization and the 4-H Club program. A final tally cannot be calculated until the reorganized school districts and revised 4-H Club programs have utilized their new opportunities for providing better education.

The individual study results must be interpreted with care. Research on a single topic, such as library facilities in reorganized and non-reorganized districts, was completed in the early 1950's and was not replicated. Some study topics were severely limited in scope, using only two school districts for comparison. The picture of rural education in 1969 is not as bleak as 10 years ago. Certain tendencies emerge among the various areas of this study:

SCHOOL REORGANIZATION—Reorganized school systems are able to provide more learning opportunities by offering more services, better equipment, and special teachers. Non-reorganized schools, perhaps acting under threat of proposed reorganization, in many cases have initiated improvement in their educational system.

—Students in reorganized schools have consistently attained higher achievement scores.

—Students in reorganized districts finish high school with an advantage in mental maturity.

—Boys from non-reorganized schools scored higher on social adjustment. No significant differences emerged between girls from reorganized and non-reorganized districts in their personal and social adjustment.

—School reorganization has not been a causative factor in participation levels and attitudes toward adult education.

—School reorganization has had little effect on migration patterns of youths.

—Youths from reorganized school systems are more apt to seek further education beyond high school for vocations.

—School district reorganization has slightly increased the amount of adult contact with village centers.

—Significant differences do not exist between instructional expenditures and academic achievement when reorganized and non-reorganized communities are compared.

4-H CLUBS—4-H Clubs have appealed to youths from higher income and social status families.

—4-H Club members have higher intelligence quotients and achieve better in school.

—4-H Club members have not shown better personal and social adjustment than non-members.

—4-H Club members continue longer in 4-H Club work if their families are interested and involved in the 4-H program.

—4-H Club drop-outs believe a larger membership group could improve the program. "Weak programs" was cited by most drop-outs as the reason given for leaving.

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DISSEMINATION OF RESEARCH FINDINGS

The most effective medium for presenting research findings is the lecture when given by the researcher. Local volunteers can be as effective as professional discussion leaders in following reports of research results to adults by lecture, film, or bulletin.

The implications from many of these research findings have already been acted upon. The number of school districts in Wisconsin steadily decreases. The role of the 4-H Club project, long mainstay of the program, is changing to be relevant to today's youth. A 4-H Club program is developing in the inner-city areas.

Many of the changes resulting from the research cannot be directly measured but only implied from the wide distribution of the research findings. To this date the most extensive distribution of the school reorganization and 4-H Club data has been by 16 mm. films. The six films, produced by The University of Wisconsin and available from its Bureau of Audio-Visual Instruction, have been rented by various state departments of public instruction, schools of education in universities and colleges, and state school board associations for use with their own groups. Numerous bulletins on the same topics have been distributed by the University of Wisconsin Agriculture Experiment Station Bulletin Room.

The Department of Agricultural and Extension Education has received hundreds of requests from educators in public schools and from extension agents to make use of the research on homogeneous and heterogeneous neighborhoods accepting change. The data help them plan for action in dealing with community groups. Heterogeneous neighborhoods are consistently more favorable toward a majority of educational programs and practices. They rank higher in socioeconomic status scores and lower than homogeneous neighborhoods in neighborhood and family strength scores.

Data on the choice of media in disseminating research findings are the most incomplete, hence the least utilized of all the topics. The focus of this investigation was on knowledge acquisition, rather than on changes in attitude, which would have been more significant.

In a longitudinal study, such as this has been, there was a progression of reports on findings as the investigation proceeded. The value of the investigation is more in these early reports than in any final document. The long look at the same subjects from Grade 1 (age 6) to 5 years after high school graduation (age 23) does give great credence to those findings which were reported in the early stages of the study and which showed a consistency over the full span of 17 years. From these findings it is possible to support the value of school reorganization as a means of increasing the academic achievement and intellectual development of youth.

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